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Contract Principles as a Guide for Protecting Intellectual Property Rights in Computer Software: The Limits of Copyright Protection, The Evolving Concept of Derivative Works, and the Proper Limits of Licensing Arrangements

Thomas Lee Hazen*

This Article explores the avenues for protecting computer software intellectual property. The copyright laws provide a delicate balance between creators' rights to the fruits of their efforts and society's interest in advancing knowledge and encouraging the free flow of information. Technological advancements in the software industry have rendered copyright protection less than creators would desire. This Article examines the demarcation between protectable expression and the public domain of ideas, as well as the evolving concept of "derivative work." The Article also addresses the use of contractual provisions to fill the perceived gaps in the copyright laws. The Article concludes that while contractual provisions can be helpful in determining the scope of a creator's proprietary interest in software, a "license" of computer software that is nothing more than a disguised sale should not be enforceable as a "back door" way of expanding the Copyright Act's protection.

INTRODUCTION

Over the past ten years, a rapidly expanding industry has developed in creating and distributing computer software. Formerly, computer

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software sales and licenses were significant only within the context of commercial users. The recent advent of the personal computer has transformed consumer-oriented software into a major industry. The rapid emergence of new technology will significantly impact legal rights. Computer-related litigation has presented courts with new situations for which there are no direct precedents. The legislatures have also played an important role in forming the law governing the creation and distribution of computer software.

Throughout this century, changing technology has broadly impacted the means of protecting intellectual property. For example, the inventions of audio recordings,¹ radio,² television,³ and, more recently, video-cassette recorders⁴ have each strained traditional copyright law. This pressure has forced courts, and in some instances Congress, to make accommodations. Most currently, computer technology is seriously testing the scope of copyright⁵ and patent⁶ law protection.

¹ 17 U.S.C. § 102(a)(7) (1982) provides copyright protection for sound recordings fixed on or after February 15, 1972. The copyright laws do not protect sound recordings fixed prior to this date. *Id.* at § 301(c). See *Lone Ranger Television, Inc. v. Program Radio Corp.*, 740 F.2d 718 (9th Cir. 1984). At least one court has held that a computer chip containing computer instructions for producing sounds may be a sound recording subject to copyright protection. *Innovative Concepts in Entertainment, Inc. v. Entertainment Enters. Ltd.*, 576 F. Supp. 457 (E.D.N.Y. 1983).

² *Columbia Broadcasting Sys., Inc. v. Documentaries Unlimited*, 42 Misc. 2d 723, 248 N.Y.S.2d 809 (1964) (a common law copyright protects live radio performances); *Waring v. WDAS Broadcasting Station, Inc.*, 327 Pa. 433, 194 A. 631 (1937) (suit in equity dealing with the right to prevent a sound recording from radio broadcast).

³ *W.G.N. Continental Broadcasting Co. v. United Video, Inc.*, 693 F.2d 622 (7th Cir. 1982) (holding news broadcast, along with accompanying teletext material, a single copyrightable audiovisual work); *Trophy Prods., Inc. v. Telebrity, Inc.*, 185 U.S.P.Q. 830 (N.Y. Sup. Ct. 1975) (holding videotape eligible for copyright protection).

⁴ *Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417 (1984) (home video recording of a televised recording does not in itself lessen the commercial value and as such does not infringe upon the copyright).

⁵ *Apple Computer, Inc. v. Franklin Computer Corp.*, 714 F.2d 1240 (3d Cir. 1983), *cert. dismissed*, 464 U.S. 1033 (1984). Even when dealing with the written word, courts have had difficulty identifying what portions of the copyrighted work are granted protection. *E.g.*, *Baker v. Seldin*, 101 U.S. 99 (1879) (identifying the portions of a copyrighted accounting system covered by the copyright monopoly); *see also, e.g.*, *Morrissey v. Proctor & Gamble Co.*, 379 F.2d 675 (1st Cir. 1967) (sweepstakes system not copyrightable); *Continental Casualty Co. v. Beardsley*, 253 F.2d 702, 704 (2d Cir. 1958) (holding published forms describing plan for blanket bond to cover lost securities ineligible for copyright protection; format of forms may be copyrightable); *Brown Instrument Co. v. Warner*, 161 F.2d 910 (D.C. Cir. 1947) (following *Taylor Instrument Cos. v. Fawley-Brost Co.*, 139 F.2d 98 (7th Cir. 1943), *cert. denied*, 321 U.S. 785

At present, computer software mass distribution raises several legal problems related to protecting the ideas, processes, and designs contained in the software. While patent laws play a role in protecting computer hardware, they may not adequately protect software, even when the software is embedded in hardware through a silicon chip.⁷ Further problems include the time and expense in protecting patents and the

(1944)), and holding that blank charts for mechanical recording of temperatures are not copyrightable); *Crume v. Pacific Mut. Life Ins. Co.*, 140 F.2d 182 (7th Cir. 1944) (limiting the copyright protection accorded to a plan for revitalizing insolvent insurance companies through reorganization and changes in accounting methods); *Taylor*, 139 F.2d at 98 (finding charts used for temperature recording machine not copyrightable); *Harcourt, Brace & World, Inc. v. Graphic Controls Corp.*, 329 F. Supp. 517, 524 (S.D.N.Y. 1971) (holding answer sheets designed for computer scoring of certain standardized texts copyrightable).

⁶ *E.g.*, *Diamond v. Diehr*, 450 U.S. 175 (1981) (suggesting that patent laws as written are ill equipped to deal with computer software technology). For discussion of the technology and terminology, see, *e.g.*, Davidson, *Protecting Computer Software: A Comprehensive Analysis*, 23 JURIMETRICS J. 337 (1983); Keplinger, *Computer Software — Its Nature and Protection*, 30 EMORY L.J. 483 (1981); Note, *Copyright Protection of Computer Program Object Code*, 96 HARV. L. REV. 1723 (1983).

⁷ The Supreme Court in 1981 upheld the patentability of an industrial rubber molding process that was built around a mathematical algorithm embodied in a computer program. *Diamond v. Diehr*, 450 U.S. 175 (1981). In so holding, the Court pointed to previous decisions holding that although the algorithm itself is not patentable, the presence of an algorithm in an otherwise patentable process will not preclude patent law protection to the entire process viewed as a whole. *Id.* at 187-88; see, *e.g.*, *Parker v. Flook*, 437 U.S. 584 (1978) (denying patent protection to an improved method of calculation, even when tied to a specific end use); *Gottschalk v. Benson*, 409 U.S. 63 (1972) (denying patent protection to a computer program because intellectual concepts are the basic tools of knowledge and thus will not be granted a protected monopoly). *Accord In re Meyer*, 688 F.2d 789 (C.C.P.A. 1982) (denying patent protection); REPORT OF THE PRESIDENT'S COMMISSION ON THE PATENT SYSTEM TO PROMOTE THE PROGRESS OF USEFUL ARTS 13 (1966) (declaring that patent laws are inappropriate for protecting software). See generally H. HANNEMAN, *THE PATENTABILITY OF COMPUTER SOFTWARE* (1985); Gemignani, *Should Algorithms Be Patentable?*, 22 JURIMETRICS J. 326 (1982); Milde, *Life After Diamond v. Diehr, The CCPA Speaks Out on the Patentability of Computer-Related Subject Matter*, 64 J. PAT. OFF. SOC'Y 434 (1982); Novick & Wallenstein, *The Algorithm and Computer Software Patentability: A Scientific View of a Legal Problem*, 7 J. COMPUTERS, TECH. & LAW 313 (1980). But see *In re Pardo*, 684 F.2d 912, 916-17 (C.C.P.A. 1982); *Paine, Webber, Jackson & Curtis, Inc. v. Merrill Lynch, Pierce, Fenner & Smith, Inc.*, 564 F. Supp. 1358, 1368-69 (D. Del. 1983) (holding computerized method for maintaining cash management account patentable) (appeal pending). See also, *e.g.*, von Spakovsky, von Spakovsky, & Graffeo, *The Limited Patenting of Computer Programs: A Proposed Statutory Approach*, 16 CUMB. L. REV. 27 (1985); cf. *Apple Computer, Inc. v. Franklin Computer Corp.*, 714 F.2d 1240 (3d Cir. 1983), cert. dismissed, 464 U.S. 1033 (1984) (granting copyright protection to proprietary operating system embodied in a computer chip).

public disclosure of the entire process required by patent protection law.⁸

At least in theory, copyright laws offer significant protection for software. However, this protection is subject to the practical problems of piracy and policing the copyright.⁹ Furthermore, copyright laws offer little, if any, protection to processes incorporated into the copyrighted program, such as programming techniques.¹⁰ Copyright protection does not extend to ideas, but only to the expression of ideas. Unfortunately, software's value frequently lies in the process rather than the particular format in which it is written.

A somewhat related problem in copyright law protection for computer software is defining a derivative work.¹¹ While the concept of "derivative work" is problematic under copyright law generally, the question of what constitutes a derivative work within the context of computer software raises serious issues not yet addressed by legal scholars. For example, the 1976 Federal Copyright Act prohibits both (1) unauthorized copying of copyrighted works, and (2) creating unauthorized derivative works.¹² This dual prohibition strongly suggests that something less than outright, direct copying can infringe upon a copyrighted work.¹³ Also, software licensing agreements frequently restrict creating "derivative works" without defining the term.

The copyright laws' shortcomings have led software distributors to seek alternatives to the traditional sale of their products. Examples of alternative approaches include using contractual restraints in licensing agreements,¹⁴ and applying trade secret law.¹⁵ Courts have not yet seri-

⁸ However, registering a copyright is relatively easy and inexpensive. Fees for obtaining the maximum 17-year patent protection (35 U.S.C. § 41 (1982)) are generally at least \$3200. In addition, attorney fees for legal services are invariably necessary for a successful patent application. See 1 D. BENDER, *COMPUTER LAW* § 3A.02 (1984); Note, *Defining the Scope of Copyright Protection for Computer Software*, 38 STAN. L. REV. 497, 504 (1986) [hereafter Note, *Copyright Protection*].

⁹ See, e.g., Conley & Bryan, *A Unifying Theory for the Litigation of Computer Software Copyright Cases*, 63 N.C.L. REV. 563 (1985); see also *supra* note 5.

¹⁰ E.g., Brooks, *Copyright and the Uses of Educational Software*, 20 EDUC. BULL. 6 (1985). But cf., e.g., *Whelan Assocs., Inc. v. Jaslow Dental Laboratory, Inc.*, 609 F. Supp. 1307 (E.D. Pa.), *amend. denied*, 609 F. Supp. 1325 (E.D. Pa. 1985), *aff'd*, 797 F.2d 1222 (3d Cir. 1986); *SAS Inst., Inc. v. S&H Computer Sys., Inc.*, 605 F. Supp. 816 (M.D. Tenn. 1985).

¹¹ 17 U.S.C. § 101 (1982).

¹² *Id.* at § 106.

¹³ See *infra* text accompanying notes 45-55.

¹⁴ See Adam, Gordon & Starr, *Contractual, Financial, and Tax Issues in Major Procurements*, 4 COMPUTER L.J. 465 (1984); Hansen, *Software Distribution*,

ously questioned these innovative distribution methods, primarily because the developments are relatively new and rapidly evolving. Some legislation and many scholars have suggested statutory changes to handle the problems presented by new technology.¹⁶ However, the issue of generating maximum protection under the current state of the law through contractual arrangements needs more attention. This Article will explore the relevant issues and alternatives.

This Article's primary focus is not direct piracy through physical copying, but rather the subtler and more difficult question of how much the user may modify or borrow from software without violating the creator's rights.¹⁷ Part I examines the types of protection for software available under laws relating to intellectual property. After defining the nature and scope of the problem, Part I explores issues surrounding the use of various laws to restrict infringement on software creators' rights. These laws include copyright law, patent law, trade secret law, and the common law tort of misappropriation. Part II systematically surveys the contractual approaches to software protection. Such a survey necessarily involves discussing the limitations of shrink wrap licenses, including whether public policy issues could void such agreements even if they complied with the traditional rules of contract formation. Part II also discusses whether federal copyright law might preempt overly restrictive limited use licenses.¹⁸

The Article concludes that adequate software protection requires contractual supplements to intellectual property laws. At the same time,

Remarketing, and Publishing Agreements, 4 COMPUTER L.J. 625 (1984); Harris, *Complex Contract Issues in the Acquisition of Hardware and Software*, 4 COMPUTER L.J. 77 (1983).

¹⁶ Contractual approaches to protecting intellectual property necessarily involve considering trade secret law. This discussion is brief since both the courts and scholarly journals have addressed this area of the law.

¹⁶ E.g., von Spakovsky, von Spakovsky, & Graffeo, *supra* note 7, at 27.

¹⁷ The Act provides:

Any exact copies prepared in accordance with the provisions of this section may be leased, sold, or otherwise transferred, along with the copy from which such copies were prepared, only as part of the lease, sale, or other transfer of all rights in the program. Adaptations so prepared may be transferred only with the authorization of the copyright owner.

¹⁷ U.S.C. § 117 (1982). See *infra* note 23 and accompanying text; see also Stern, *Section 117 of the Copyright Act: Charter of Software Users' Rights Or an Illusory Promise?*, 7 W. NEW ENG. L. REV. 459 (1985).

¹⁸ See, e.g., *Videotronics, Inc. v. Bend Elecs.*, 564 F. Supp. 1471 (D. Nev. 1983); see Luccarelli, *The Supremacy of Federal Copyright Law Over State Trade Secret Law for Copyrightable Computer Programs Marked With a Copyright Notice*, 3 COMPUTER L.J. 19 (1981).

courts must preserve the delicate balance between the developer's right to profit from her creativity and the need to advance knowledge. Accordingly, courts should not enforce overly restrictive contractual limitations on using and disseminating computer software. Finally, the Article argues that courts should utilize a de facto sale doctrine to deal with software licenses that are disguised as sales to limit the rights that would ordinarily exist under copyright law.

I. PROTECTING THE INTELLECTUAL PROPERTY IN COMPUTER SOFTWARE

This Part begins by attempting to define the unique problems in protecting software as intellectual property. The Part then analyzes the three legal protections most commonly employed by software creators: copyright law, trade secret law, and the tort cause of action for misappropriation.

A. *The Problem Defined*

Computer programs are basically a series of commands instructing the machine (or "hardware") what functions to perform.¹⁹ Computer software programs are generally written in "source code," using a programming language such as BASIC or PASCAL. A programming language is a predefined set of instructions used by the programmer to tell the computer what to do. The computer then translates the source code into "object code," or machine language, which the computer can read but is far less intelligible to human programmers. Source code is generally stored on cassette tape, floppy disk, hard disk, or some other machine-readable medium. Frequently, the less intelligible object code is stored on cassette or disk; it may also be stored on a silicon chip known as a ROM (read only memory) chip.

There are various ways of reproducing or copying a computer program. In many instances, reproducing the electronic representation of the source or object code on a diskette through direct copying is possible. This direct copying is similar to copying sounds from a phonograph record onto an audio cassette. One can also transfer the program from one machine to another by using data communication techniques through a cable connection or telecommunications. Alternatively, someone with a printed source code listing can enter the code into any compatible computer.

¹⁹ For a more detailed description of the computing process, see 1 D. BENDER, *supra* note 8, at ch. 2; L. DICKEY, *INTRODUCTION TO COMPUTER CONCEPTS* (1974).

Software creators can inhibit direct copying in several ways. Scrambling the order in which the electronic data is stored may protect diskettes. However, each new copy protection scheme becomes a challenge to "hackers" who usually find a way to break down the protection. A second method of protection is encrypting the code so that the machine can decipher and interpret it, but a human generally cannot.²⁰ Despite these and other techniques, widespread piracy of computer programs continues. Physical copy protection schemes have slowed the process, but have not eliminated the problem.

The devices and programs developed to break through copy protection techniques make stealing software relatively easy. Popular computing magazines are replete with debates on the ethics of copying.²¹ Software pirates attempt to justify copying by pointing to the high prices charged for programs contained on disks costing less than \$2.00. Software developers counter that the high price is justified by high start-up and development costs and by the relatively short commercial life of most programs.

This Article does not address the debate between software developers and pirates.²² Copyright laws clearly prohibit unauthorized direct copying except for the limited purpose of making archival copies by someone who has rightfully purchased the program. The Copyright Act also permits rightful owners of a copyrighted work to make copies to facilitate their personal use of the software.²³

²⁰ This is generally a very inefficient and time consuming process, much like trying to decipher a military intelligence secret code.

²¹ E.g., Holmes, *Was Robin a Hood?*, 35 J. SYS. MGMT. 6 (1984); Jones, *You'll Find Nothing Merry About EDP Robin Hoods*, NATIONAL UNDERWRITER 88:3 (Nov. 16, 1984); Pender, *Perspectives on Computer Ethics and Crime*, 36 BUS. 30 (1986).

²² The argument that software's high cost justifies piracy, while perhaps evoking some of Robin Hood's romance, has no legal basis and would be no defense to a copyright infringement action. In fact, such a willful disregard of the copyright laws might lead a court to award statutory damages up to \$50,000. See 17 U.S.C. § 504(c) (1982).

²³ *Id.* at § 117. All such archival copies must be destroyed if continued possession of the computer program is no longer rightful. *Id.* The federal copyright statute provides:

[I]t is not an infringement for the owner of a copy of a computer program to make or authorize the making of another copy or adaptation of that computer program provided: (1) that such a new copy or adaptation is created as an essential step in the utilization of the computer program in conjunction with a machine and that it is used in no other manner, or (2) that such new copy or adaptation is for archival purposes only. . . .

Id.

1. The First Sale Doctrine

The rightful owner of a copy of a copyrighted work has the right to sell that copy, but nothing more. This right is known as the first sale doctrine. Under this doctrine, "the owner of a particular copy . . . or any person authorized by such owner, is entitled, without the authority of the copyright owner, to sell or otherwise dispose of the possession of that copy"²⁴ This limitation on the copyright owner's ability to restrict resale inhibits effective policing of downstream piracy.

Some software distributors rely on licensing arrangements rather than outright sale. By licensing the use of software rather than selling a copy in the same manner that one sells a book, distributors can avoid the first sale doctrine's consequences.²⁵

Licensing entails both commercial licenses²⁶ and end user, mass marketed licenses, such as "shrink wrap" or "box top" licenses, under which the supplier purports to bind the purchaser merely by the purchaser's act of opening the package.²⁷ Since the licensor drafts most licensing agreements, they are one-sided and of questionable enforceability, especially in the mass marketing context.

B. Copyright Protection and the Elusive Concept of a Derivative Work

1. Scope of the Copyright Monopoly

Copyright laws, originally designed to protect the written word, have expanded to several expressive mediums. They now protect art, music, phonograph recordings, the performance of copyrighted works, movies,

²⁴ *Id.* at § 109(a).

²⁵ See, e.g., 1, 2, 3 M. NIMMER, NIMMER ON COPYRIGHT §§ 4, 5, 8.11, 10.01(A) (1985); Einhorn, *The Enforceability of "Tear-Me-Open" Software License Agreements*, 67 J. PAT. OFF. SOC'Y 509, 520 (1985) (suggesting that the first sale doctrine may render invalid certain shrink wrap license terms).

²⁶ Hansen, *supra* note 14, at 655; Hoffman, *Software Development and Service Agreements*, 24 JURIMETRICS J. 58 (1983).

²⁷ E.g., Brooks, *Shrink-Wrapped License Agreements: Do They Prevent the Existence of a "First Sale"?*, 1 COMPUTER LAW. 17 (April, 1984); Gilburne, *Enforceability of Shrink-Wrapped Software Licenses in PLI*, COMPUTER LAW INST. 447 (1984); Sherman, *Shrink-Wrap Licensing of Computer Programs in PLI*, COMPUTER LAW INST. 541 (1985); Note, *Commercial Law — The Enforceability of Computer "Box Top" License Agreements Under the U.C.C.*, 7 WHITTIER L. REV. 881 (1985) [hereafter Note, "Box Top" License Agreements]. Of particular importance in this regard is the law relating to the unenforceability of unconscionable contracts. See, e.g., Note, *Frankly Incredible: Unconscionability in Computer Contracts*, 4 COMPUTER L.J. 695 (1984).

and television.²⁸ Copyright laws also protect computer software's source codes and object codes.²⁹ The software's screen images are also copyrightable as an audiovisual work. Copyright owners possess exclusive control over the distribution of their copyrighted work.³⁰ However, the scope of the protection is significantly limited; the copyright monopoly extends to the expression of ideas rather than the ideas themselves.³¹ This limitation strikes a fair balance between the creators' right to the fruits of their labors and society's interest in sharing knowledge and technological advancements.

The problem of identifying what is protectable expression and what is in the public domain of ideas has plagued the courts and commentators since the inception of copyright laws.³² A simple example illus-

²⁸ See *supra* text accompanying notes 1-4; *infra* text accompanying notes 34-37.

²⁹ E.g., *Apple Computer, Inc. v. Franklin Computer Corp.*, 714 F.2d 1240, 1249 (3d. Cir. 1983), *cert. dismissed*, 464 U.S. 1033 (1984). The Semiconductor Chip Protection Act of 1984 supplements copyright law protection. The Act grants special protection to the "mask" when a program is embedded in a ROM (Read Only Memory) silicon chip. 17 U.S.C. §§ 901 et seq. (1984 Supp.). The Chip Act protection supplements the copyright laws but its reach is not as comprehensive. For example, Chip Act protection lasts for only ten years and thus is shorter than the patent laws (17 years plus renewal) and the copyright laws (the author's life plus 50 years). Also, under the Chip Act reproduction of the semiconductor mask by way of reverse engineering is permissible. In this regard, the Act's protection more closely resembles trade secret law rather than patent or copyright protection which prohibits copying. For a detailed analysis of the Chip Act, see *Symposium: The Semiconductor Chip Protection Act of 1984 and its Lessons*, 70 MINN. L. REV. 263 (1985).

³⁰ 17 U.S.C. § 106 (1982); see *infra* note 46.

³¹ Ideas are in the public domain unless they are sufficiently novel and useful to qualify for patent protection or, alternatively, unless they are confidential and thus qualify for trade secret protection. See generally NATIONAL COMM'N ON NEW TECHNOLOGICAL USES OF COPYRIGHTED WORKS, FINAL REPORT (1978). But cf. *Williams v. Arndt*, 227 U.S.P.Q. 615 (D. Mass. 1985) (holding that computer program "copied" from plaintiff's copyrighted booklet explaining commodities trading system infringed the copyright; the court viewed the program as a copy of the expression rather than a restatement of the ideas). For literature discussing the patent laws, see *supra* notes 6-7. For discussion of trade secret law, see *infra* text accompanying notes 95-132.

³² E.g., *Baker v. Selden*, 101 U.S. 99 (1879) (limiting portions of copyrighted accounting system covered by copyright monopoly); see also, e.g., *M. Kramer Mfg. Co. v. Andrews*, 783 F.2d 421, 434 (4th Cir. 1986); *Morrissey v. Proctor & Gamble Co.*, 379 F.2d 675 (1st Cir. 1967) (sweepstakes system not copyrightable); *Continental Casualty Co. v. Beardsley*, 253 F.2d 702, 704 (2d Cir. 1958) (holding that published forms describing plan for blanket bond to cover lost securities are eligible for copyright protection but that infringement not shown); *Brown Instrument Co. v. Warner*, 161 F.2d 910 (D.C. Cir. 1947) (following *Taylor Instrument Cos. v. Fawley-Brost Co.*, 139 F.2d 98 (7th Cir. 1943) (holding that blank charts for mechanical recording of temperatures not copyrightable), *cert. denied*, 321 U.S. 785 (1944); *Crume v. Pacific Mut.*

trates the dilemma.³³ Assume that the play *Romeo and Juliet* was validly copyrighted. Is another play about two young lovers from feuding families simply borrowing the idea, or is it using a similar expression? Assume further that the second play's setting is New York City, and the famous balcony scene is transposed to a back alley and a fire escape. Is this merely borrowing the idea, or is it a taking of the idea's expression?

The foregoing questions are also relevant in determining what constitutes a "derivative work."³⁴ Copyright protection for computer programs is somewhat expanded in that under appropriate circumstances the screen images may be protectable as an audiovisual work.³⁵ Formalistically, one could view copyright protection for software as distinct from any protection granted to the source or object codes. Under such a view, copyright for the screen image does not flow automatically from copyright protection for the source code.³⁶ On the other hand, while

Life Ins. Co., 140 F.2d 182 (7th Cir. 1944) (limiting copyright protection for plan revitalizing insolvent insurance companies through reorganization and changes in accounting methods); *Taylor*, 161 F.2d at 910 (charts for temperature recording machine not copyrightable); *Harcourt, Brace & World, Inc. v. Graphic Controls Corp.*, 329 F. Supp. 517, 524 (S.D.N.Y. 1971) (holding answer sheets designed for computer scoring of certain standardized texts are copyrightable).

³³ This example is borrowed from Professor John Conley's presentation to the North Carolina Bar Association in Winston-Salem, N.C., on Feb. 25, 1986. *See also*, e.g., *Durham Indus., Inc. v. Tomy Corp.*, 630 F.2d 905, 909 (2d Cir. 1980); *E.F. Johnson Co. v. Uniden Corp.*, 1986 Copyright L. Dec. (CCH) § 25,887 at 20,054-055 (D. Minn. 1985) ("to the extent that an author's work is derived from preexisting materials in the public domain, copyright protection is afforded only to the non-trivial, original features contributed by the author to the derivative work").

³⁴ *See infra* text accompanying notes 47-53.

³⁵ *E.g.*, *M. Kramer Mfg. Co. v. Andrews*, 783 F.2d 421 (4th Cir. 1986); *see infra* notes 69, 77-81.

³⁶ *See Note, Copyright Protection*, *supra* note 8, at 531. *But see* Comment, *Proving Copyright Infringement of Computer Software: An Analytical Framework*, 18 LOY. L.A.L. REV. 919, 942, 945 (1985). Thus, for example, someone seeking to protect both the code and screen images should comply with copyright notice requirements both with respect to the viewer of the screen and the beginning of the code. The writer suggests applying the "unit publication doctrine" to software protection so as to protect both the code and screen image by a single copyright. *Note, Copyright Protection*, *supra* note 8, at 530-34; *see, e.g.*, *Koontz v. Jaffarian*, 787 F.2d 906 (4th Cir. 1986) (holding under unit publication doctrine that computer program copyright protected data compilation that was part of the program and manuals). For other cases recognizing the unit publication doctrine, but not involving computer software, *see, e.g.*, *Monogram Models, Inc. v. Industro Motive Corp.*, 492 F.2d 1281 (6th Cir.), *cert. denied*, 419 U.S. 843 (1974) (holding scale model airplane kits copyrightable); *Uneeda Doll Co. v. Goldfarb Novelty Co.*, 373 F.2d 851 (2d Cir. 1967) (Pee Wee doll copyrightable).

prudence would call for copyrighting the code and screen images separately, copyrighted code should, through the concept of derivative work, protect against copying or substantial "borrowing" from a protectable, nonfunctional screen image produced by the code.³⁷

The Copyright Act greatly simplified the formalities for securing copyright protection. Formerly, copyright protection began on publication. This led to difficult questions regarding exactly when the work was first published.³⁸ Under the Copyright Act, copyright in a work created after 1978 begins with its creation.³⁹ The procedural requirements for obtaining copyright protection are minimal and inexpensive. The Act preconditions protection simply on placing a copyright notice at the beginning of the work. Inadvertently failing to give the required copyright notice does not necessarily preclude copyright protection.⁴⁰

In addition to the notice requirement, the Act strongly encourages federal registration of all copyrights.⁴¹ The registration procedures entail at least a limited disclosure of the copyrighted material. Unfortunately, this disclosure may conflict with supplemental protection intended by trade secret laws.⁴² Also, any copyright infringement action generally results in complete disclosure of the copyrighted material. Assuming the formal requirements are satisfied, the copyright protection

as a work of art); *Lydiard-Peterson Co. v. Woodman*, 204 F. 921 (8th Cir. 1913) (holding map copyrightable); 2 M. NIMMER, *supra* note 25, at § 7.10[D].

³⁷See *Whelan Assocs., Inc. v. Jaslow Dental Laboratories, Inc.*, 609 F. Supp. 1307, 1322 (E.D. Pa. 1985), *aff'd*, 797 F.2d 1222 (3d Cir. 1986).

³⁸*E.g.*, *Letter Edged in Black Press, Inc. v. Public Bldg. Comm'n*, 320 F. Supp. 1303 (N.D. Ill. 1970); Kaplan, *Publication in Copyright Law: The Question of Phonograph Records*, 103 U. PA. L. REV. 469 (1955); Selvin, *Should Performance Dedicate?*, 42 CALIF. L. REV. 40 (1954).

³⁹17 U.S.C. § 302(a) (1982).

⁴⁰*Id.* at §§ 401, 402. Inadvertent failure to affix a proper notice upon publication will not forfeit the copyright protection. See, e.g., *M. Kramer Mfg. Co. v. Andrews*, 783 F.2d 421, 443-44 (4th Cir. 1986); H.R. Rep. No. 94-1476, 94th Cong., 2d Sess. 53, 143 (1976).

⁴¹17 U.S.C. § 407(a) (1982) requires registration by depositing two copies of the work with the copyright office within three months of the work's publication. Failure to register does not have significant immediate impact and is not a precondition to copyright protection (*id.* at § 408(a)), but registration is strongly encouraged. For example, registration within five years of publication is *prima facie* evidence of the copyright's validity. *Id.* at § 410(c). Furthermore, the Act limits the remedies for infringement that are available absent registration. *Id.* at § 412.

⁴²To satisfy the registration requirement for computer programs, the first 25 and last 25 pages of source code must be filed with the Copyright Office. 37 C.F.R. § 202.20(c)(2)(vii) (1986).

lasts for fifty years beyond the author's death.⁴³ In the case of anonymous and pseudonymous works and works made for hire, the copyright term is the shorter of seventy-five years from publication or one hundred years from creation.⁴⁴

2. Defining Copyright Infringement and Derivative Works

Having considered the types of works that can qualify for copyright protection and the procedures for securing the protection, the following analysis discusses the scope of copyright protection. Formerly, copyright law granted a copyright owner the exclusive right to produce and reproduce the copyrighted work. The Copyright Act expanded the scope of protection beyond the copying of works and established an exclusive right to create "derivative works."⁴⁵ A derivative work includes works "based upon one or more preexisting works, such as a translation, musical arrangement, dramatization, fictionalization, motion picture version, sound recording, art reproduction, abridgment, condensation, or any other form in which a work may be recast, transformed, or adapted."⁴⁶ The Act further provides: "A work consisting of editorial revisions, annotations, elaborations, or other modifications which, as a whole, represent an original work of authorship, is a 'derivative work.'"⁴⁷ This broad definition precludes a bright-line test, and makes

⁴³ Trade secret protection is discussed *infra* in the text accompanying notes 95-132. Similarly, the patent laws require disclosure as a condition of patent protection.

⁴⁴ 17 U.S.C. § 302(c) (1982). Under the former law, the initial copyright lasted for 28 years and was subject to renewal for another 28 years. *See, e.g.*, *Fred Fisher Music Co. v. M. Witmark & Sons*, 318 U.S. 643, 644 (1943). The 1976 Act has very complex rules for the duration of copyrights created prior to 1978. *See* 17 U.S.C. §§ 304, 305 (1982). Briefly, a work in its initial 28 year term may be renewed for another 47 years (i.e., a total of 75 years). *Id.* at § 304(a). For copyrights renewed prior to the new law, the renewal term was extended so as to provide a total of 75 years. *Id.* at § 304(b).

⁴⁵ 17 U.S.C. § 103 (1982).

⁴⁶ *Id.* at § 101. Subject to "fair use" limitations (*id.* at § 107), a copyright owner "has the exclusive rights to do and authorize any of the following:

(1) to reproduce the copyrighted work in copies or phonorecords;
(2) to prepare derivative works based upon the copyrighted work; . . ."

Id. at § 106. The section also grants the exclusive right to distribute, to transfer ownership, and to rent, lease or lend (*id.* at § 106(3)), and to publicly perform or display the work (*id.* at § 106(4),(5)). The Act provides that anyone who violates any of the copyright owner's exclusive rights enumerated above is an infringer of the copyright. *Id.* at § 501.

⁴⁷ *Id.* at § 101. Many of the issues surrounding the derivative work concept have long been a part of the copyright laws, but the first reported case using the term was *Nom Music, Inc. v. Kaslin*, 343 F.2d 198, 200 (2d Cir. 1965). *See Brown, The Widening Gyre: Are Derivative Works Getting Out of Hand?*, 3 CARDOZO ART & ENT. L.J.

each determination of what is a derivative work highly factual. In the computer software context, defining "derivative work" presents particularly difficult problems.⁴⁸

Tracing the 1976 Copyright Act's historical development sheds light on its derivative work concept. The derivative work concept was significant even prior to the 1976 Act,⁴⁹ which retains the principles of the former Act. For example, in determining whether a work based on an uncopyrighted work itself merits copyright protection, identifying the portion of the derivative work deserving protection is an important function.⁵⁰ Also, a number of cases raise the issue of derivative work protection when the underlying work is dedicated to the public domain. This can happen, for example, when the copyright holder fails to renew the copyright (in order to secure the maximum permissible duration, the former copyright statute required renewal; it is no longer a factor under the Copyright Act).⁵¹ Although the cases conflict, the better view is that the loss of the copyright in the underlying work, such as a book, does not destroy all copyright protection for the derivative

1, 13 n.69 (1984). For a chart depicting the increasing number of cases involving the concept of a derivative work, see *id.* at 25.

⁴⁸ 17 U.S.C. § 101 (1982); see *infra* text accompanying notes 83-88.

⁴⁹ See generally Goldstein, *Derivative Rights and Derivative Works in Copyright*, 30 J. COPYRIGHT SOC. 209 (1982); see also, e.g., *Gracen v. Bradford Exch.*, 698 F.2d 300, 302 (7th Cir. 1983) (to claim a copyrightable derivative work, party must show: (1) that the copyright owner authorized derivative work and (2) the new work adds original creative or artistic contributions); *Gallery House, Inc. v. Yi*, 582 F. Supp. 1294, 1297 (N.D. Ill. 1984) (same).

⁵⁰ See generally Denicola, *Copyright in Collections of Facts: A Theory for the Protection of Nonfiction Literary Works*, 81 COLUM. L. REV. 516 (1981) (discussing the difficulty of identifying that portion of nonfiction in the public domain and the portion that is copyrighted). The issue frequently arises in the context of anthologies and compilations of material that is in the public domain. See, e.g., *Koontz v. Jaffarian*, 787 F.2d 906 (4th Cir. 1986) (compilation of facts relating to electrical estimating system); *Financial Information, Inc. v. Moody's Investors Serv., Inc.*, 751 F.2d 501 (2d Cir. 1984) (compilation of facts relating to publicly traded bonds); *Wainright Sec., Inc. v. Wall Street Transcript Corp.*, 558 F.2d 91 (2d Cir. 1977), *cert. denied*, 434 U.S. 1014 (1978) (failure to show fair use of copyrighted material warranted injunction); *Rosemont Enters., Inc. v. Random House, Inc.*, 366 F.2d 303 (2d Cir. 1966) (historical facts in copyrighted work not protected), *cert. denied*, 385 U.S. 1009 (1967); *Rand McNally & Co. v. Fleet Management Sys., Inc.*, 634 F. Supp. 604 (N.D. Ill. 1986) (direct copying of mileage data compilation from map to computer disk was copyright infringement); *Southwestern Bell Tel. Co. v. National Indep. Directory Serv., Inc.*, 371 F. Supp. 900 (W.D. Ark. 1974) (copyright precludes direct reproduction of compilation but not copying and reformatting the material contained therein).

⁵¹ See, e.g., *Ricordi & Co. v. Paramount Pictures, Inc.*, 189 F.2d 469 (2d Cir. 1951) (addressing the issue but not using the term "derivative work").

work, such as a movie.⁵²

Even without the renewal procedure, the Copyright Act does not settle these and other issues relating to derivative works. The Act does expand the concept of derivative work. For example, the new law includes creating derivative works as one of the copyright owner's exclusive rights.⁵³ Thus, an unauthorized derivative of a copyrighted work infringes on the copyright. In including a derivative work as an infringing act, it is unclear whether the new law is simply refining and clarifying the types of activities that constitute an infringement, or whether it is setting up an infringing derivative work as something distinct from an infringing reproduction.⁵⁴

The addition of this concept in 1976 supports the view that the Copyright Act provides wider protection than did the former law, which simply prohibited infringement by copying. One case suggests that some element of copying must exist to find an infringing derivative work. Accordingly, the mere borrowing of an idea is not an infringing derivative work.⁵⁵ On the other hand, something less than direct copying that constitutes a borrowing of protected expressions clearly is an infringement. Thus, in the context of computer software, the creation of an infringing derivative work can arise out of "borrowing" from the copyrighted source code or object code, "borrowing" from screen images protected as audiovisual works, and "borrowing" of distinctive copyrighted characters.

Determining what constitutes copyright infringement by way of copying is often difficult. For example, when someone copyrights a painting, can someone else photograph the painting? Although the answer might have been unclear under former law, the Copyright Act prohibits copying regardless of the medium and regardless of whether the copy-

⁵² *Filmvideo Releasing Corp. v. Hastings*, 668 F.2d 91 (2d Cir. 1981); *Russell v. Price*, 612 F.2d 1123 (9th Cir. 1979), *cert. denied*, 446 U.S. 952 (1980); *Grove Press, Inc. v. Greenleaf Publishing Co.*, 247 F. Supp. 518 (E.D.N.Y. 1965).

⁵³ See *supra* note 46.

⁵⁴ *Conley & Bryan*, *supra* note 9, at 573.

⁵⁵ As one court has observed, "The little available authority suggests that a work is not derivative unless it has been substantially copied from the prior work." *Litchfield v. Spielberg*, 736 F.2d 1352, 1357 (9th Cir. 1984) (holding that *E.T.* was not an infringement of plaintiff's musical play *Lokey from Maldemar*, which was based on two aliens who were temporarily stranded near the North Pole, and were befriended by a scientist's two young children). The court's statement goes too far in limiting the scope of what constitutes an infringing derivative work. See Note, *Copyright Protection*, *supra* note 8, at 510-11; *infra* text accompanying notes 73, 85-90; see also *Zambito v. Paramount Pictures Corp.*, 613 F. Supp. 1107 (E.D.N.Y. 1985) (finding *Raiders of the Lost Ark* not an infringement of *Black Rainbow*, which had a similar theme).

ing is from one medium to another.⁵⁶ In the context of a computer program, the issue arises whether a copyrighted program contained on a disk or ROM chip loses its protection because it is not perceptible once loaded into the machine and translated into machine readable form. Courts initially viewed this as a thorny issue, but apparently they have finally recognized copyright protection.⁵⁷

Directly copying copyrighted source or object codes unquestionably constitutes an infringement. A more difficult question is how much "borrowing" short of literal, direct copying is permissible. This question involves not only determining the degree of original effort put into the new work, but also identifying what portions of the copyrighted work are protected against misappropriation by others. For example, a court recently held that a public domain computer database of judicial decisions cannot include the pagination as it would appear in the West Publication Company reporters without infringing on West's copyright.⁵⁸ The court reasoned that although referring to the West citation was permissible, including the West pagination on a page-by-page basis would seriously cut into the economic value of West's copyrighted expression.⁵⁹ The court thus viewed appropriating West's paging for-

⁵⁶ For example, it is infringement to take a copyrighted source code from a magazine, enter it into a computer and then sell copies. *Micro-Sparc, Inc. v. Amtype Corp.*, 592 F. Supp. 33 (D. Mass. 1984); *see also, e.g., Atari, Inc. v. North Am. Phillips Consumer Elec. Corp.*, 672 F.2d 607, 618 n.12 (7th Cir.), *cert. denied*, 459 U.S. 880 (1982); *Rand McNally & Co. v. Fleet Management Sys.*, 634 F. Supp. 604 (N.D. Ill. 1986), 600 F. Supp. 933 (N.D. Ill. 1984) (same case); *Midway Mfg. Co. v. Bandai-America, Inc.*, 546 F. Supp. 125, 139 (D.N.J. 1982).

⁵⁷ *E.g., Apple Computer, Inc. v. Franklin Computer Corp.*, 714 F.2d 1240 (3d Cir. 1983), *cert. dismissed*, 464 U.S. 1033 (1984); *see also, e.g., Note, Copyright Law and Computer Software: The Third and Ninth Circuits take Another Bite of the Apple*, 49 ALB. L. REV. 170 (1984); *Note, Computer Copyright Law: An Emerging Form of Protection for Object Code Software After Apple v. Franklin*, 5 COMPUTER L.J. 233 (1984); *Note, Roms, Rams, and Copyright: The Copyrightability of Computer Chips*, 14 SW. U.L. REV. 685 (1984).

⁵⁸ *West Publishing Co. v. Mead Data Cent., Inc.*, 799 F.2d 1219 (8th Cir. 1986), *affg* 616 F. Supp. 1571 (D. Minn. 1985) (preliminary injunction granted). The court noted that West is not the official reporter for any court.

⁵⁹ The court held that using the citation was fair, but using page-by-page numbers was not. As the court explained:

There is an additional contribution by West Publishing which goes beyond the simple copyright which exists for their editorial work. The genius of the work is that it is self-indexing. By assembling the cases as they have been arranged in sequenced volumes, a case can be indexed by its name with a volume number, series designation, and page number. . . .

The West Publishing Company's arrangement is a significant work of

mat as equivalent to directly copying its copyrighted material.

A somewhat related question is whether translating a computer program to a different machine or a different code is an infringing work. The technology and differences between programming languages make this question more difficult than the claim that the copyrighted source code loses any basis for protection when translated and read into the machine. An early federal case (that has since been overruled) held that a French translation of *Uncle Tom's Cabin* did not infringe on the copyrighted original.⁶⁰ Today courts consider directly translating either a literary work or computer source code a direct copying copyright infringement. In one case⁶¹ involving translating computer software, the court drew an analogy to literary translations. It held that translating a program from one source code to another to enable the program originally written for a large computer to run on a microcomputer was a direct copying copyright infringement.

In contrast, another court held that when direct translation is impossible there is no copyright infringement. Thus, a programmer did not infringe the copyright to a source code in BASIC written for an Atari microcomputer when he wrote a program substantially similar in function and screen design in PASCAL for the IBM-PC.⁶² As for the screen design, the court held that although screens may be copyrightable as an audiovisual work, the idea was not copyrightable since the layout was purely functional. Thus, there was nothing protectable in the expression on the screen.⁶³

skill and enterprise which is itself entitled to copyright protection. 17 U.S.C. § 103. . . . LEXIS has long noted at the beginning of each of its cases the "cite" according to the West Publishing Company arrangement. This West acknowledges is a fair use of its copyrighted material . . . That cite calls a researcher to West's books — which they are in business to sell as well as create

With immediate access to the jump cite, there is instant access to West's whole arrangement; you never again need to get each and every aspect of West's copyrighted arrangement of cases. This is the instance when . . . 'a use that supplants any part of the normal market for a copyrighted work would ordinarily be considered an infringement.' Senate Report [No. 94-473], cited in *Harper & Row Publishers v. Nation Enters.*, ____ U.S. ____, 105 S. Ct. 2218, 2235, 85 L.Ed.2d 588 (1985).

West, 616 F. Supp. at 1578-79.

⁶⁰ *Stowe v. Thomas*, 23 Fed. Cas. 201 (C.C.E.D. Pa. 1853) (No. 13,514).

⁶¹ *Whelan Assocs. v. Jaslow Dental Laboratories*, 797 F.2d 1222 (3d Cir. 1986), *aff'g*, 609 F. Supp. 1307 (E.D. Pa. 1985).

⁶² *Q-Co Indus., Inc. v. Hoffman*, 625 F. Supp. 608 (S.D.N.Y. 1985).

⁶³ *Id.* at 615; *see supra* text accompanying notes 35-36; *infra* text accompanying notes 77-78.

An extension of the translation issue arose when the copyright owner of a commodities trading program published in booklet form claimed infringement by the author of a computer program incorporating plaintiff's trading system.⁶⁴ The court found that since the defendant in essence translated the system into a different language (i.e. computer code), the defendant had infringed the plaintiff's copyright. Whether the computer program was really a duplication of the copyright owner's expression, or the appropriation of his ideas into a different form of expression, is a close question. The ruling giving copyright protection to the trading system's creator reflects a very broad view of the copyright monopoly scope.⁶⁵

As a general proposition, the copyright owner has the burden of proving infringement.⁶⁶ However, to prove infringement by copying, the owner need not necessarily present direct evidence of copying. Circumstantial evidence suffices.⁶⁷ Access to the copyrighted source code is strong circumstantial evidence, especially when direct copying was possible and the allegedly infringing work is substantially similar both in code and in appearance to the copyrighted work.⁶⁸ The issue is whether

⁶⁴ *Williams v. Arndt*, 227 U.S.P.Q. 615 (D. Mass. 1985).

⁶⁵ The *Williams* decision was criticized in Reback & Hayes, *Copyright Gone Astray: The Misappropriation Alternative*, 3 COMPUTER LAW. 1 (1986). Arguably, the *Williams* court's real concern was that the defendant had advance access to plaintiff's work, and thus the infringing program was an unauthorized use. See, e.g., *Whitfield v. Lear*, 751 F.2d 90 (2d Cir. 1984) (recognizing implied in fact contract theory); cf. *Koontz v. Jaffarian*, 787 F.2d 906 (4th Cir. 1986) (defendant infringed plaintiff's copyright by copying information from a copyrighted manual, and also by using algorithms that plaintiff had supplied in confidence to the defendant).

⁶⁶ *Whelan Assocs. v. Jaslow Dental Laboratories*, 609 F. Supp. 1307, 1321 (E.D. Pa. 1985), *aff'd*, 797 F.2d 1222 (3d Cir. 1986) (plaintiff "has the burden of proving that the alleged infringing IBM-PC Dentcom program was 'copied,' and that the 'copy' is an improper appropriation"), *relying upon* *Arnstein v. Porter*, 154 F.2d 464, 468 (2d Cir. 1946); *Klitzner Indus., Inc. v. H.K. Jones & Co.*, 535 F. Supp. 1249 (E.D. Pa. 1982).

⁶⁷ E.g., *Franklin Mint Corp. v. National Wildlife Art Exch., Inc.*, 575 F.2d 62, 64 (3d Cir.), *cert. denied*, 439 U.S. 880 (1978); *Whelan*, 609 F. Supp. at 1321; *Midway Mfg. Co. v. Bandai-America, Inc.*, 546 F. Supp. 125, 146 (D.N.J. 1982); *Custom Decor, Inc. v. Nautical Crafts, Inc.*, 502 F. Supp. 154, 157 (E.D. Pa. 1980); see also, e.g., *SAS Inst., Inc. v. S&H Computer Sys., Inc.*, 605 F. Supp. 816 (M.D. Tenn. 1985); *Conley & Bryan*, *supra* note 9; cf. *Selle v. Gibb*, 741 F.2d 896 (7th Cir. 1984) (strong similarity may be circumstantial evidence of access).

⁶⁸ In *Whelan*, access was established because defendant not only had access to the source code, but also claimed coauthorship of the plaintiff's work. "Expert testimony as to similarity is clearly appropriate." *Whelan*, 609 F. Supp. at 1321. Here the expert gave a "detailed and thorough analysis of the many similarities." *Id.* at 1322. The court also noted that "the visual screens that are displayed are almost identical in for-

there was a "substantial" copying of protected material. Literal similarity between the copyrighted work and the allegedly infringing program supports an infringement claim.⁶⁹ Direct or literal copying can constitute infringement even if it accounts for only a small portion of the copyrighted program. For example, a court held that literal copying of less than one fortieth of one percent of a copyrighted program's code constituted infringement.⁷⁰

One writer suggests that in addition to such a "literal" approach to determining infringement, the courts should also take a structural analysis approach.⁷¹ The structural approach focuses not only on the program code's word by word instructions, but also on the logic and organization of the commands and subroutines within the program. A structural approach would arguably provide a sound way to protect the code's expression. However, to the extent that the program's structure is functional, copyright laws may not offer protection, since a functional program's structure falls within the public domain of ideas.⁷²

mat and even in use of abbreviations and terminology." *Id.* at 1322. Finally the court noted that the defendant "lacked the ability to create on his own, or even with the help of a skilled programmer in correcting his errors, a workable system, especially one that is almost an exact duplicate of the system of [the plaintiff]." *Id.* at 1322.

One lesson of the *Whelan* decision is that a program that is neither copy protected nor contains encrypted code, thus giving the user access to the copyrighted code, may be circumstantial evidence of copying when looking at a substantially similar subsequent work. The practical trade-off is that the lack of a copy protection scheme increases the likelihood of widespread infringement (e.g., piracy).

⁶⁹ See, e.g., *Koontz v. Jaffarian*, 787 F.2d 906 (4th Cir. 1986), *aff'g* 617 F. Supp. 1108 (E.D. Va. 1985) (similarity including reproduction of errors in the copyrighted work established infringement); see Note, *Copyright Protection*, *supra* note 8, at 512-13; see also, e.g., *Midway Mfg. Co. v. Strohon*, 564 F. Supp. 741, 752 (N.D. Ill. 1983) (89 to 97 percent identity constituted infringement).

⁷⁰ See Note, *Copyright Protection*, *supra* note 8, at 512 (relying on *SAS Inst., Inc. v. S&H Computer Sys., Inc.*, 605 F. Supp. 816, 822, 830 (M.D. Tenn. 1985)); cf. *In re Certain Personal Computers and Components Thereof*, 1983-84 Copyright Law Dec. [CCH] § 25,651 at 18,927-29 (Int'l Trade Comm'n March 9, 1984) (18 to 25 percent identity indicates infringement).

⁷¹ Note, *Copyright Protection*, *supra* note 8, at 529.

⁷² See, e.g., *Atari, Inc. v. North Am. Phillips Consumer Elecs. Corp.*, 672 F.2d 607, 616 (7th Cir.), *cert. denied*, 459 U.S. 880 (1982) ("similarity of expression . . . which necessarily results from the fact that the common idea is only capable of expression in more or less stereotyped form will preclude a finding of actionable similarity") (quoting from 3 M. NIMMER, *supra* note 25, at 13-20; NATIONAL COMM'N ON TECHNOLOGICAL USES OF COPYRIGHTED WORKS, FINAL REPORT 21 (1978)); see also *supra* notes 6-7. But cf. *Broderbund Software, Inc. v. Unison World, Inc.*, 231 U.S.P.Q. 700 (N.D. Cal. 1986) (indicating that infringement can be based on similarity in "touch and feel" of the programs).

As noted above, similarity in appearance is relevant only if the appearance itself is copyrightable. Even apart from the code, there can be a copyright in the visual screens as an audiovisual work.⁷³ But the scope of audiovisual protection is much less predictable than other types of copyright protection.

While the law is well established that only the expression is copyrightable and the ideas expressed are not, the rule is more easily stated than applied. As one court explained:

[I]t is as clear an infringement to translate a computer program from, for example, FORTRAN to ALGOL, as it is to translate a novel or play from English to French. In each case the substance of the expression (if one may speak in such contradictory language) is the same between original and copy, with only the external manifestation of the expression changing. Likewise, it would probably be a violation to take a detailed description of a particular problem solution, such as a flowchart or step-by-step set of prose instructions, written in human language, and program such a description in computer language. But here the similarity to literary translation ends. The preparation of a computer program in *any* language from a general description of the problem to be solved (as, for example, is contained in the forms and manuals, which prescribe a problem involving a set of ordered inputs in a particular arrangement which must be accepted by the computer and transmitted to the FRAN program) is very dissimilar to the translation of a program from one language to another. In most cases, the formulation of the problem in sufficient detail and with sufficient precision to enable it to be converted into an unambiguous set of computer instructions requires substantial imagination, creativity, independent thought, and exercise of discretion, and the resulting program can in no way be said to be merely a copy or version of the problem statement. The program and the statement are so different, both in physical characteristics and in intended purpose, that they are really two different expressions of the same idea, rather than two different versions of the same expression. Hence EDI's preparation of a FORTRAN preprocessor program from the descriptions contained in the manuals cannot constitute an infringing derivative use provided this was done without copying of the plaintiff's FORTRAN program, as it was.⁷⁴

⁷³ *M. Kramer Mfg. Co. v. Andrews*, 783 F.2d 421 (4th Cir. 1986) (dealing with both source code and audiovisual copyright of poker videogame); *Universal City Studios, Inc. v. Nintendo Co.*, 109 F.R.D. 121 (S.D.N.Y. 1985) (infringement of Donkey Kong video game based on substantial similarity of (1) repetitive sequences of sight and sound as an audiovisual work, (2) characters, (3) "tone and feel," and (4) the interaction of the characters, obstacles, background, and music; the court found infringement by viewing the work as a whole); *see, e.g., Atari*, 672 F.2d at 607; *Midway Mfg. Co. v. Strohon*, 564 F. Supp. 741 (N.D. Ill. 1983) (finding infringement of source code as a "literary work," but no infringement of visual display as an audiovisual work).

⁷⁴ *Synercom Technology, Inc. v. University Computing Co.*, 462 F. Supp. 1003, 1013 n.5 (N.D. Tex. 1978).

Accordingly, showing an infringement based on the source code (or the object code) requires showing that a copying took place.

Although access to the copyrighted code is necessary to prove a direct copying, it is far from sufficient even when there is some similarity in the allegedly infringing product. Line-by-line similarity of the programming code establishes an infringement.⁷⁵ Strong similarity of expression, even without a line-by-line correlation, can also establish an infringement.⁷⁶ An infringing copy or derivative work exists when one work is copied from another but the similarities are disguised.⁷⁷

Detailed reverse engineering does not establish infringement when the alleged infringer only analyzes the copyrighted code and borrows some of the ideas without copying the copyrighted expression thereof.⁷⁸

⁷⁵ *E.g.*, *Apple Computer, Inc. v. Franklin Computer Corp.*, 714 F.2d 1240, 1245 (3d Cir. 1983), *cert. dismissed*, 464 U.S. 1033 (1984). *See generally* Conley & Bryan, *supra* note 9.

⁷⁶ *E.F. Johnson Co. v. Uniden Corp.*, 623 F. Supp. 1485, 1497 (D. Minn. 1985) (programs did not have line-by-line similarity, but court still found infringement because literal translation from one language to another "necessarily involved a skewing of the program such that line-by-line comparison becomes meaningless"). Frequently expert testimony is necessary to establish similarity. *See, e.g.*, *SAS Inst., Inc. v. S&H Computer Sys.*, 605 F. Supp. 816 (M.D. Tenn. 1985).

⁷⁷ *E.F. Johnson*, 623 F. Supp. at 1485; *Merideth Corp. v. Harper & Row Publishers, Inc.*, 413 F. Supp. 385, 388 (S.D.N.Y. 1975) (alterations in literary work); *see also* Conley & Bryan, *supra* note 9, at 599:

Although there is little or no relevant case law, the new Act's definition of derivative work again is helpful. If plagiarism followed by disingenuous alteration is not the creation of an authorized derivative work, what is? The focus once again is on the defendant's conduct; the relevant inquiry is whether he based his program on or adapted it from a preexisting program. If the plaintiff shows that the defendant initially appropriated both ideas and expression, derived substantial benefit from doing so, and then made "colorable alterations . . . to disguise the piracy" without contributing substantial original expression, it will be fully consistent with traditional copyright principles to find the defendant liable because of his behavior. (footnotes omitted) (quoting from *Tennessee Fabricating Co. v. Moultrie Mfg. Co.*, 421 F.2d 279, 284 (5th Cir.), *cert. denied*, 398 U.S. 928 (1970)).

Cf. Hubco Data Prods. Corp. v. Management Assistance, Inc., 219 U.S.P.Q. 450 (D. Idaho 1983) (preliminary injunction against making copies as a first step in creating a work modifying plaintiff's program).

⁷⁸ *E.F. Johnson*, 623 F. Supp. at 1501 n.17, wherein the court observed:

The mere fact that defendant's engineers dumped, flow charted, and analyzed plaintiff's work does not in and of itself establish pirating. . . . Had [defendant] contented itself with surveying the general outline of the [plaintiff's] program, thereafter converting the scheme into detailed code through its own imagination, creativity and independent thought, [a claim

As one commentator explains:

If disassembly leads to the creation of a final product that is not substantially similar to the original program, consumers will be enriched by a wider choice of programs. Their options are enhanced at the expense of the owner of the original copyright, who will find the scope of his monopoly narrowed. But copyright law inevitably balances the proprietor's interest in protection against the public's interest in disclosure. For example, copyright law protects only expression and not ideas so that the public can profit by using the ideas in copyrighted works.⁷⁹

Of course, as observed earlier,⁸⁰ establishing at what point the idea ends and the expression begins is not always easy.

a. Protection for Computer Audiovisual Works

As pointed out above, even apart from the source and object codes, copyright protection may attach to what appears on the screen if it qualifies as a copyrightable audiovisual work.⁸¹ This copyright protection for audiovisual works is much less predictable than protection for source and object codes. A purely functional visual screen is not copyrightable as an audiovisual work, and thus may be copied to another program (assuming the copier does not look to the source code as the basis for her copy).⁸² Since copyright law does not extend to ideas and does not protect utilitarian functions,⁸³ command codes that are functional descriptions of an idea are not a copyrightable expression.⁸⁴

of infringement would not have arisen].

⁷⁹ Note, *Copyright Protection*, *supra* note 8, at 518.

⁸⁰ See, e.g., *Williams v. Arndt*, 227 U.S.P.Q. 615 (D. Mass. 1985); *supra* notes 30-32 and accompanying text.

⁸¹ E.g., *M. Kramer Mfg. Co. v. Andrews*, 783 F.2d 421 (4th Cir. 1986); *Stern Elec., Inc. v. Kaufman*, 669 F.2d 852 (2d Cir. 1982) (rejecting argument that user input that changes the screen image renders the programs' repetitive series of images not copyrightable).

⁸² See *S&H Computer Sys., Inc. v. SAS Inst., Inc.* 568 F. Supp. 416 (M.D. Tenn. 1983); *Synercom Technology v. University Computing Co.*, 462 F. Supp. 1003 (N.D. Tex. 1978).

⁸³ See generally Denicola, *Applied Art and Industrial Design: A Suggested Approach to Copyright in Useful Articles*, 67 MINN. L. REV. 707 (1983). Novel utilitarian designs may be subject to design patent protection. See Frijouf, *Simultaneous Copyright and Patent Protection*, 23 COPYRIGHT L. SYMP. (ASCAP) 99 (1977). However, patent protection for computer programs is highly problematic. See *Diamond v. Diehr*, 450 U.S. 175 (1981); *Parker v. Flook*, 437 U.S. 584 (1978); *Gottschalk v. Benson*, 409 U.S. 63 (1972); *In re Meyer*, 688 F.2d 789 (C.C.P.A. 1982); REPORT OF THE PRESIDENT'S COMM'N, *supra* note 7, at 13 (patent laws inappropriate for software protection). See generally *supra* notes 6-7.

⁸⁴ E.g., *Williams Elecs., Inc. v. Bally Mfg. Corp.*, 568 F. Supp. 1274, 1278-81

However, even without a copyright infringement, there can be violations of state unfair competition law. Subject to preemption by federal copyright law, there can also be violations of the state law of misappropriation, which bars reaping profits from seeds that one did not sow.⁸⁵ Further, section 43(a) of the Lanham Act,⁸⁶ which prohibits certain methods of unfair competition, prevents disparaging the original product or creating confusion as to its source.⁸⁷

In light of the various copyright doctrines discussed above, predicting when a new work borrows ideas from a copyrighted work is extremely difficult. Equally challenging is predicting how close the new work can come to the original without becoming an infringing derivative work. Cases dealing with the borrowing and modifying of literary characters shed some light upon this issue. For example, a court held that the television show *The Greatest American Hero* did not infringe upon the copyrights relating to *Superman*.⁸⁸ Although both stories revolved around a crime-stopping super hero dressed in a cape, and maintaining a secret identity, this was insufficient to make the second work an infringing derivative of the first.⁸⁹ *The Greatest American Hero*'s status as a parody buttressed the finding of no infringement.⁹⁰ But what if the

(N.D. Ill. 1983); *SAS Inst.*, 568 F. Supp. at 416, 422-23. See generally Wharton, *Use and Expression: The Scope of Copyright Protection for Computer Programs*, 5 COMPUTER L.J. 433, 454-67 (1985).

⁸⁵ See generally 2 L. ALTMAN & R. CALLMAN, UNFAIR COMPETITION, TRADEMARKS, AND MONOPOLIES § 15.01 (1981) [hereafter CALLMAN]; *infra* text accompanying notes 131-38.

⁸⁶ 15 U.S.C. § 1125(a) (1982) (prohibiting false designations of origin and false descriptions of goods or services).

⁸⁷ See, e.g., *M. Kramer Mfg. Co. v. Andrews*, 783 F.2d 421, 447-50 (4th Cir. 1986) (discussing "trade dress infringement" of console for video game).

⁸⁸ *Warner Bros., Inc. v. American Broadcasting Cos.*, 720 F.2d 231 (2d Cir. 1983).

⁸⁹ In *Warner Bros.*, the court pointed out that *The Greatest American Hero* was not a direct copy. *Id.* at 244. Further, any borrowing from the copyrighted *Superman* was in a satirical vein:

[T]he announcer says that Hinkley 'may be unable to leap tall buildings in a single bound,' 'may be slower than a speeding bullet,' and 'may be less powerful than a locomotive.' We do not doubt that some viewers may miss the point, but their misunderstanding does not establish infringement. Perhaps if Hero were a children's series, aired on Saturday mornings among the cartoon programs, we would have greater concern for the risk that lines intended to contrast Hinkley with Superman might be mistakenly understood to suggest that Hero was a Superman Program.

Id. at 247. The court also rejected a Lanham Act claim.

⁹⁰ *Hero* also involved the special rule relating to parody and fair use. See, e.g., *Berlin v. E.C. Publications, Inc.*, 329 F.2d 541 (2d Cir.) (take-offs "The First Time I Saw

second work had also involved a newspaper reporter with a romantic affiliation to a co-reporter, a young naive photographer, and a crusty white-haired editor? That would have come much closer to being an infringing work.

The line of cases dealing with copyright protection for literary and comic book characters⁹¹ impact the protection of computer software

Maris" and "Louella Schwartz Describes Her Malady" did not infringe "The Last Time I Saw Paris" and "A Pretty Girl is Like a Melody"), *cert. denied*, 379 U.S. 822 (1964); Columbia Pictures Corp. v. National Broadcasting Co., 137 F. Supp. 348 (S.D. Cal. 1955) (satirical *From Here to Obscurity* did not infringe *From Here to Eternity*); *cf.* Universal City Studios, Inc. v. T-Shirt Gallery, Ltd., 634 F. Supp. 1468 (S.D.N.Y. 1986) ("Miami Mice" t-shirts did not infringe copyright for *Miami Vice* television series). *But see* Walt Disney Prods. v. Air Pirates, 581 F.2d 751 (9th Cir. 1978) (X-rated copies of Disney characters held not protected by fair use since the characters were copied directly; relief was based on copyright infringement — trade disparagement, trademark infringement, and unfair competition claims were remanded), *cert. denied*, 439 U.S. 1132 (1979); Benny v. Loew's, Inc., 239 F.2d 532 (9th Cir. 1956) (satirical burlesque production *Autolight* did infringe *Gaslight*), *aff'd*, 356 U.S. 43 (1958); Original Artworks, Inc. v. Topps Chewing Gum, 642 F. Supp. 1031 (N.D. Ga. 1986) (preliminary injunction against Garbage Pail Kids' infringement on Cabbage Patch Kids); DC Comics, Inc. v. Unlimited Monkey Business, Inc., 598 F. Supp. 110 (N.D. Ga. 1984) ("Super Stud" and "Wonder Wench" costumes for singing telegrams, when characters had similar costumes and borrowed dialogue from *Superman* and *Wonder Woman*, held infringement since the parody went beyond permissible fair use). *See generally* Dorsen, *Satiric Appropriation and the Law of Libel, Trademark, and Copyright: Remedies Without Wrongs*, 65 B.U.L. REV. 923 (1985).

⁹¹ Even apart from the context of the satire or parody issue, the mere taking of a general idea cannot constitute copyright infringement. *See, e.g.*, National Comics Publications, Inc. v. Fawcett Publications, Inc., 191 F.2d 594 (2d Cir. 1951) (*Captain Marvel* did not infringe *Superman's* copyright). *Compare, e.g.*, Warner Bros. Pictures, Inc. v. Columbia Broadcasting Sys., 216 F.2d 945, 950-51 (9th Cir. 1954) (copyright protection not granted to the Sam Spade character; literary characters merely vehicles for telling story not copyrightable), *cert. denied*, 348 U.S. 971 (1955) and Nichols v. Universal Pictures Corp., 45 F.2d 119, 122-23 (2d Cir. 1930) (general traits of stock characters in *Abie's Irish Rose* not protected by copyright), *cert. denied*, 282 U.S. 902 (1931) with Filmvideo Releasing Corp. v. Hastings, 509 F. Supp. 60, 66 (S.D.N.Y. 1981); *modified on other grounds*, 668 F.2d 91 (2d Cir. 1981) (Hopalong Cassidy and his pals Lucky, Windy, and Johnny all held sufficiently developed to be protected by copyright). *See also, e.g.*, Sid & Marty Krofft Television Prods., Inc. v. McDonald's Corp., 562 F.2d 1157, 1175 (9th Cir. 1977) (McDonaldland commercials held to infringe "H.R. Pufnstuf" characters from children's television show).

However, courts may find infringement when more than the idea is involved and the characters are directly copied with a great degree of detail. *See* Detective Comics, Inc. v. Bruns Publications, Inc., 111 F.2d 432, 433 (2d Cir. 1940) (*Wonderman* held to infringe *Superman* when defendant copied copyrighted pictures and literary form); Silverman v. CBS, Inc., 632 F. Supp. 1344 (S.D.N.Y. 1986) (extending copyright protection to audiovisual depiction of Amos 'n' Andy characters, although scripts are in

containing unique identifiable screen images or characters. For example, although the concept of the Pac-Man game is not copyrightable, the use of ghost monsters such as "gobbler" for the central figures distinguishes the game from others. The ghost monsters are sufficiently fanciful to merit protection against appropriation by someone else.⁹² Copyright protection of screen images (assuming that they are fanciful as opposed to utilitarian) as an audiovisual work⁹³ is analogous to the protection given to cartoon figures. This protection is generally greater than the protection afforded literary characters.

3. Use of Contractual Provisions to Help Define the Extent of Protection

The as yet undefined scope of the "derivative work" concept makes it difficult to predict how much borrowing of ideas, formats, plot lines and characters can take place before a work based on prior copyrighted work becomes an infringing derivative work. Within the context of computer software, the separate treatment of a program's audiovisual aspects further compound the problem of defining the scope of copyright protection. Most of the cases discussed in the preceding section that have successfully established a copyright infringement involve ei-

public domain); *see also, e.g.*, *Walt Disney Prods. v. Air Pirates*, 581 F.2d 751, 755 (9th Cir. 1978) (characters ordinarily not copyrightable, but "comic book character . . . [with] physical and conceptual qualities . . . likely to contain some unique elements of expression"), *cert. denied*, 439 U.S. 1132 (1979). *See generally* Note, *The Protection Afforded Literary and Cartoon Characters Through Trademark, Unfair Competition and Copyright*, 68 HARV. L. REV. 349 (1954).

In the words of a recent ruling, decided under the former Copyright Act:

Cartoons, and other graphic representations of characters, have been afforded greater copyright protection than characters described only by words Copyright protection has been found appropriate for characters visually depicted in a movie [W]e must consider a novel issue: are characters that are in the public domain in a literary work protectable by copyright in an audiovisual presentation? We believe they are. The visual representation of these characters, recorded on film, is the expression of an idea that goes beyond the word portraits in the public domain scripts and is, therefore, protectable by copyright

Silverman, 632 F. Supp. at 1355 (citations omitted).

⁹² *Atari, Inc. v. North Am. Philips Consumer Elecs. Corp.*, 672 F.2d 607, 617-18 (7th Cir.), *cert. denied*, 459 U.S. 880 (1982); *see, e.g.*, *Williams Elecs., Inc. v. Artic Int'l, Inc.*, 685 F.2d 870, 876 (3d Cir. 1982) (upholding validity of copyright for DEFENDER video game).

⁹³ *Stern Elec., Inc. v. Kaufman*, 669 F.2d 852 (2d Cir. 1982); *Universal City Studios, Inc. v. Nintendo Co.*, No. 82 Civ. 4259 (RWS) (S.D.N.Y. July 29, 1985); *see supra* text accompanying note 36.

ther (1) direct copying, proven in some cases by circumstantial evidence of access to the protected programming code, or (2) second works by persons participating in or otherwise having access to the developmental processes of the original piece of software.

The current statutory framework may be too general to permit more predictable guidelines for potential infringers. Such uncertainty may be desirable to the extent that it forces caution on the borrower and thereby the would-be infringer. However, a vague standard may create the need for more explicit statutory definition. This seems unlikely in light of the recent overhaul of the copyright legislation. Divining a more predictable pattern will no doubt take the courts many years of interpretation under the Copyright Act. In the interim, software developers can — by taking care in drafting contractual provisions with persons participating in the development process — better define the scope of their proprietary interests. While contractual provisions cannot, of course, define the scope of the statutory meaning of derivative work, they can establish the parties' understanding as to what is the property of the copyright owner. State contract law may recognize such contractual expectations, supplemented by other legal theories. For example, by attempting to define the types of programming processes or techniques incorporated in the program, the contract may provide protection under trade secret or misappropriation law.

There are two obvious limits to relying on contracts to counteract uncertainty over what constitutes a derivative work or what constitutes protectable expression. First, the contracting parties cannot extend restrictions to program users without their consent. Second, courts should invalidate contracts attempting to expand the intellectual property's protection too far beyond the parameters of copyright law on the grounds of statutory preemption, or as against public policy.⁹⁴ The law of trade secrets and misappropriation, discussed below, may give at least limited additional protection on appropriate facts.

C. Trade Secret Protection and Misappropriation

1. Trade Secret Law

As pointed out above, copyright law does not protect ideas; it protects only the expression of ideas. Accordingly, something functional or utilitarian cannot be the subject of copyright protection, whether it is a work of art⁹⁵ or a functional aspect of a computer program.⁹⁶ As dis-

⁹⁴ See *infra* text accompanying notes 196-200.

⁹⁵ See generally Denicola, *supra* note 83.

⁹⁶ See *supra* text accompanying note 79.

cussed above, a limited supplemental protection may extend to the ways in which the images are produced on the screen, or to input commands, so long as they are not purely functional. By contrast, patent laws protect novel utilitarian inventions.⁹⁷ However, whether patent laws will grant meaningful protection to computer programs is extremely doubtful.⁹⁸ One way to fill the gap thus created by patent and copyright law is through trade secret protection.⁹⁹ Trade secret law is embodied both in common law and in some state statutes.¹⁰⁰

The law of trade secrets can protect matters not subject to copyright protection. In the context of a computer program, for example, trade secret protection can safeguard the code underlying subroutines within programs such as user friendly menus, on-line help screens, or random number generation. When such a program is not copyrightable, trade secret law would provide protection even if its protections extend to the ideas and functions contained in the program.¹⁰¹ In programming, value is often contained in the programmer's ideas of how to present the code in such a way as to produce a desired result, rather than the particular expression in the code. For example, a programmer wishing to develop the most efficient algorithm to create an on-screen menu may face several alternatives for setting up such a subroutine. If after a great deal of time and effort a programmer comes up with a routine to create a menu that works quickly and efficiently, the resulting process (and design of the flow chart) are ideas, and thus not subject to copyright protection.

Trade secret protection is useful in such a situation only when the ideas are not reproducible merely by looking at the finished product. Furthermore, absent a contractual relationship between the parties, the

⁹⁷ 35 U.S.C. §§ 1-376 (1982).

⁹⁸ See *supra* notes 5-7 and accompanying text.

⁹⁹ See generally R. MILGRIM, 12, 12A BUSINESS ORGANIZATIONS, R. MILGRIM ON TRADE SECRETS §§ 1.01-.03 (1981); Bender, *Trade Secret Protection of Software*, 38 GEO. WASH. L. REV. 909 (1970); Gilburne & Johnston, *Trade Secret Protection for Software Generally and in the Mass Market*, 3 COMPUTER LAW J. 211 (1982); Note, *The Copyrightability of Computer Software Containing Trade Secrets*, 63 WASH. U.L.Q. 131 (1985).

¹⁰⁰ E.g., RESTATEMENT OF TORTS § 757 (1982); UNIFORM TRADE SECRETS ACT, ABA SECTION OF PATENT, TRADEMARK, AND COPYRIGHT LAW, 1973 COMM. REPORTS 179-82. Many statutes provide that theft of trade secrets is a crime. E.g., CAL. PENAL CODE § 499c (West 1967 & Supp. 1986); see also *People v. Gopal*, 171 Cal. App. 3d 524, 217 Cal. Rptr. 487 (1985).

¹⁰¹ E.g., *Synercom Technology, Inc. v. University Computing Co.*, 462 F. Supp. 1003, 1013 n.5 (N.D. Tex. 1978), quoted *supra* in text accompanying note 74.

trade secret protection will not prohibit reverse engineering. Any person rightfully possessing a product or a process subject to trade secret protection may, through the process of reverse engineering or otherwise, reproduce the ideas and functions not protected by the patent laws.¹⁰² This means that absent a strong copy protection scheme or enforceable contractual restrictions, computer functions and subroutines may be reproduced without infringing the creator's rights so long as there is not a direct copying of the expression. Hackers can break down protection schemes; thus, contractual provisions will be necessary to provide the basis for any significant trade secret protection.

a. Defining Trade Secret Law

At this point, presenting a brief overview of trade secret law may prove helpful. Simply put, a trade secret is an idea or a process that gives the owner a competitive advantage over others who do not have access to the secret.¹⁰³ A classic example of a trade secret is the formula for Coca-Cola. The Coca-Cola formula is not protected by a patent, but has not been reproducible over a period of decades. The obvious advantage to trade secret protection in such a situation is that it extends beyond the limited period that would govern a patented process.¹⁰⁴ Similarly, as pointed out above, the primary advantage of trade secret protection in the computer software context is that it protects ideas and processes that may not be subject to either patent or copyright laws.¹⁰⁵

¹⁰² See, e.g., *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 490 (1974); Raskind, *Reverse Engineering, Unfair Competition, and Fair Use*, 70 MINN. L. REV. 385 (1985) (discussing the Semiconductor Chip Protection Act of 1984, which, unlike patent laws, expressly permits reproduction through reverse engineering for ROM masks protected under 1984 Act); see also R. MILGRAM, *supra* note 99, at § 504(1).

¹⁰³ RESTATEMENT OF TORTS § 757 comment b (1939) provides: "A trade secret may consist of any formula, pattern, device or compilation of information which is used in one's business, and which gives him an opportunity to obtain an advantage over competitors who do not know or use it"; see also, e.g., *Prudential Ins. Co. v. Sipula*, 776 F.2d 157, 162-65 (7th Cir. 1985); *Syntex Ophthalmics, Inc. v. Tsuetaki*, 701 F.2d 677, 684 (7th Cir. 1983); *FMC Corp. v. Varco Int'l, Inc.*, 677 F.2d 500, 502-03 (5th Cir. 1982); *Sikes v. McGraw-Edison Co.*, 665 F.2d 731, 733 (5th Cir. 1982); *Palin Mfg. Co. v. Water Technology*, 103 Ill. App. 3d 926, 930, 431 N.E.2d 1310, 1314 (1982); *K & G Oil Tool & Serv. Co. v. G & G Fishing Tool Serv.*, 158 Tex. 594, 605, 314 S.W.2d 782, 789 (1958), *cert. denied*, 358 U.S. 898 (1958). Not all courts follow the Restatement in requiring that the trade secret be shown to give a competitive advantage. E.g., *Victor Chem. Works v. Iliff*, 299 Ill. 532, 132 N.E. 806 (1921).

¹⁰⁴ 35 U.S.C. § 154 (1982) (17 years).

¹⁰⁵ In this regard there may be some question as to whether trade secret protection is preempted by the federal copyright and patent laws. See *infra* text accompanying notes

According to the original *Restatement of Torts*, in order to guarantee trade secret protection courts will consider the degree of secrecy, and the measures taken to protect the secrecy of the process or formula.¹⁰⁶ While a few courts have also required that the process be "novel,"¹⁰⁷ most have not.¹⁰⁸ However, one court suggested that, at least in computer software cases, the process or idea must to some extent be "original or novel".¹⁰⁹

Courts agree that trade secrets lie somewhere on a continuum from what is generally known in a field to what has some degree of uniqueness, although there need not be the degree of novelty or originality required for copyright protection. Within these limits, courts have suggested a variety of further limitations. Some measure of discovery is required. Mere variations in general processes known in the field which embody no superior advances are not protected. But unique principles, engineering, logic and coherence in computer software may be accorded trade secret status. And a trade secret may modify and improve standard models to a point at which

112-16.

¹⁰⁶ Under the RESTATEMENT OF TORTS § 757 comment b (1939), courts should evaluate a claimant's right to trade secret protection in light of the following six factors:

- (1) the extent to which the information is known outside of his business;
- (2) the extent to which it is known by employees and others involved in his business;
- (3) the extent of measures taken by him to guard the secrecy of the information;
- (4) the value of the information to him and to his competitors;
- (5) the amount of effort or money expended by him in developing the information;
- (6) the ease or difficulty with which the information could be properly acquired or duplicated by others.

This test has been adopted in the computer program context. *See, e.g.*, *University Computing Co. v. Lykes-Youngstown Corp.*, 504 F.2d 518, 534 (5th Cir. 1974); *Q-Co Indus., Inc. v. Hoffman*, 625 F. Supp. 608, 616-17 (S.D.N.Y. 1985); *Structural Dynamics Research Corp. v. Engineering Mechanics Research Corp.*, 401 F. Supp. 1102 (E.D. Mich. 1975); *Com-Share, Inc. v. Computer Complex, Inc.*, 338 F. Supp. 1229, 1234 (E.D. Mich. 1971), *aff'd per curiam*, 458 F.2d 1341 (6th Cir. 1972); *Cybertek Computer Prods., Inc. v. Whitfield*, 203 U.S.P.Q. [BNA] 1020, 1023 (Cal. Super. Ct. 1977); *Jostens, Inc. v. National Computer Sys., Inc.*, 318 N.W.2d 691, 698-99 (Minn. 1982); *Computer Print Sys., Inc. v. Lewis*, 422 A.2d 148, 153 n.3, 281 Pa. Super. 240, 245 n.3 (1980); *Amoco Prod. Co. v. Lindley*, 609 P.2d 733, 744 (Okla. 1980); *J & K Computer Sys., Inc. v. Parrish*, 642 P.2d 732 (Utah 1982).

¹⁰⁷ *Q-Co Indus., Inc. v. Hoffman*, 625 F. Supp. 608, 617 (S.D.N.Y. 1985); *see also In re Innovative Constr. Sys., Inc.*, 788 F.2d 1260 (7th Cir. 1986).

¹⁰⁸ *E.g.*, *Kodekey Elecs., Inc. v. Mechanex Corp.*, 486 F.2d 449, 455 (10th Cir. 1973); *Raybestos-Manhattan, Inc. v. Rowland*, 460 F.2d 697, 700 (4th Cir. 1972); *Clark v. Bunker*, 453 F.2d 1006, 1009 (9th Cir. 1972); *Forest Laboratories, Inc. v. Pillsbury Co.*, 452 F.2d 621, 624 (7th Cir. 1971); *Dickerman Assocs., Inc. v. Tiverton Bottled Gas Co.*, 594 F. Supp. 30 (D. Mass. 1984); *Structural Dynamics*, 401 F. Supp. at 1117; *see R. MILGRIM supra* note 99, at § 2.08[2].

¹⁰⁹ *Gilburne & Johnston, supra* note 99, at 215.

the newer version is unique in the industry.

Further, generally known computer elements may gain trade secret protection from the nature of their combination.¹¹⁰

The court's analysis allows an interesting comparison with the concept of "derivative work" under the copyright laws. As pointed out earlier,¹¹¹ the law prohibits unauthorized adaptations and modifications when a work is copyrighted. On the other hand, when a work is modified along the lines described above, the derivative work may enjoy trade secret protection if the person making the modifications has not violated the owner's rights. Presumably, if the person making the modifications has taken someone else's trade secret, the new product violates the original creator's rights. Similarly, an authorized derivative work of a copyrighted program, or a derivative work based on something in the public domain, qualifies for copyright protection of the expression but not the ideas embodied therein. One must rely on trade secret law to protect the expression.

b. Applying Trade Secret Law

The interplay between the trade secret protections and those afforded under the Copyright Act raise some question as to whether the Act preempts trade secret law.¹¹² The Act's legislative history strongly suggests that it was intended to preempt only the common law of copyright, and not analogous rights such as trade secret law.¹¹³ This seems the better view, since copyright laws protect only expression, and trade secret laws cover ideas and processes.¹¹⁴

¹¹⁰ *Jostens, Inc. v. National Computer Sys., Inc.*, 318 N.W.2d 691, 698-99 (Minn. 1982) (denying trade secret protection for lack of uniqueness). As one commentator explained *Jostens*, "if the uniqueness of software does not extend beyond the form of expression of known algorithms to achieve previously produced results (with no material advancements involved), trade secret protection may be denied." Davidson, *Protecting Computer Software: A Comprehensive Analysis*, 1983 ARIZ. ST. L.J. 611, 722 (footnote omitted).

¹¹¹ See *supra* text accompanying notes 45-48.

¹¹² The Act expressly preempts state law that gives rights "equivalent" to federal copyright protection. 17 U.S.C. § 301 (1982). For a description of the legislative history see Davidson, *supra* note 110, at 743-44.

¹¹³ See, e.g., *Warrington Assocs., Inc. v. Real-Time Eng'g Sys., Inc.*, 522 F. Supp. 367 (N.D. Ill. 1981); *M. Bryce & Assocs., Inc. v. Gladstone*, 319 N.W.2d 907 (Wis. App.), *cert. denied*, 459 U.S. 944 (1982).

¹¹⁴ *Conley & Bryan*, *supra* note 9, at 576-77; Davidson, *supra* note 110, at 744-47. This view is bolstered by the fact that patent laws do not preempt state trade secret protection even though both are based on the protection of ideas and processes. *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470 (1974).

Accordingly, preemption is likely to be a problem only when software creators invoke trade secret laws merely to prevent the copying of expression, without the misappropriation elements normally attached to a trade secret claim.¹¹⁵ For example, some scholars argue that the Copyright Act does not preempt trade secret law provided that proof of secrecy and confidentiality is an element of the state law protection. They assert that preemption should bar trade secret protection for mass marketed programs when confidentiality cannot be maintained.¹¹⁶

A matter of common knowledge cannot, of course, qualify for trade secret protection. On the other hand, absolute secrecy is not required.¹¹⁷ That the object code is not a secret does not prevent trade secret protection for the source code.¹¹⁸ Copyright registration results in at least a

¹¹⁵ Videotronics, Inc. v. Bend Elecs., 564 F. Supp. 1471, 1476-77 (D. Nev. 1983); Avco Corp. v. Precision Air Parts, Inc., 210 U.S.P.Q. 894 (M.D. Ala. 1980), *aff'd on other grounds*, 676 F.2d 494 (11th Cir.), *cert. denied*, 459 U.S. 1037 (1982), *later appeal*, 736 F.2d 1499 (11th Cir.), *reh'g denied*, 744 F.2d 97 (11th Cir. 1984), *cert. denied*, 469 U.S. 1191 (1985); *see also* Ehat v. Tanner, 780 F.2d 876, 878 (10th Cir. 1986); Financial Information, Inc., v. Moody's Investors Serv., Inc., 751 F.2d 501, 510 (2d Cir. 1984); Rand McNally & Co. v. Fleet Management Sys., Inc., 591 F. Supp. 726, 739 (N.D. Ill. 1983); *infra* text accompanying notes 142-47.

¹¹⁶ *See* 1 M. NIMMER, *supra* note 25, at § 1.01[B]; Note, *Copyright Protection*, *supra* note 8, at 505-06; *supra* text accompanying notes 101-03; *cf.* Whitfield v. Lear, 751 F.2d 90 (2d Cir. 1984) (misappropriation of ideas actionable when ideas submitted in context justifying recovery under implied-in-fact contract theory).

¹¹⁷ In the words of one court:

Although information that is generally known cannot be a trade secret, *Ferber v. Sterndent Corp.*, 51 N.Y.2d 782, 433 N.Y.S.2d 85, 412 N.E.2d 1311 (1980), absolute secrecy is not required. *Fairchild Engine and Airplane Corp. v. Cox*, 50 N.Y.S.2d 643 (Sup. Ct. 1944). As noted by this Circuit:

The rule is only that a "substantial element of secrecy must exist and this means so much that" except by use of improper means, there would be difficulty in acquiring the information. *A.H. Emery Co. v. Marcan Prods. Corp.*, 389 F.2d 11, 16 (2d Cir.), *cert. denied*, 393 U.S. 835, 89 S. Ct. 109, 21 L.Ed.2d 106 (1968).

Q-Co Indus., Inc. v. Hoffman, 625 F. Supp. 608, 617 (S.D.N.Y. 1985); *see also, e.g.*, *University Computing Co. v. Lykes-Youngstown Corp.*, 504 F.2d 518, 534-35 (5th Cir. 1974) (computer program protected as trade secret); *Imperial Chem. Indus. Ltd. v. National Distillers & Chem. Corp.*, 342 F.2d 737, 742 (2d Cir. 1965) (unique combination of publicly known component parts creates protectable trade secret).

¹¹⁸ *Telex Corp. v. IBM*, 510 F.2d 894, 911, 928-930 (10th Cir.), *cert. dismissed*, 423 U.S. 802 (1975); *Q-Co Indus., Inc. v. Hoffman*, 625 F. Supp. 608, 617-18 (S.D.N.Y. 1985); *Com-Share, Inc. v. Computer Complex, Inc.*, 338 F. Supp. 1229, 1234-35 (E.D. Mich. 1971), *aff'd*, 458 F.2d 1341 (6th Cir. 1972); McGrody, *Protection of Computer Software — An Update and Practical Synthesis*, 20 Hous. L. Rev. 1033, 1063 (1983).

limited disclosure of a computer program,¹¹⁹ and there is thus some tension between the copyright laws and trade secret protection. Therefore, registering a copyright may significantly limit what can effectively be kept secret.

Several persons can have access to the trade secret without destroying a claim of secrecy if they have taken a pledge of confidentiality.¹²⁰ However, contractual pledges of secrecy by the purchaser or licensee of mass marketed software may not, as a practical matter, be sufficient. In terms of defining the scope of secrecy required, the question may arise as to whether the attempt to preserve secrecy in the context of mass-marketed licensing agreements will be effective.¹²¹

Trade secret protection claimants must demonstrate that they have made efforts to keep the secret and to police and protect against breaches of the secret.¹²² The measures taken to preserve secrecy fall into two categories: in-house protection and measures taken with respect to third parties. A proprietor of a trade secret can attempt to maintain secrecy in a number of ways. These include: contracting for employment agreements requiring confidentiality; maintaining procedures to protect the secrecy of confidential documents; permitting disclosure to third parties only under written agreements assuring confidentiality; monitoring security breaches; and policing trade secret agreements through judicial enforcement.¹²³

In-house protection schemes relate primarily to security systems and contractual arrangements with employees that restrict use of confiden-

¹¹⁹ The first and last 25 pages or equivalent units must be filed with the Copyright Office. 37 C.F.R. § 302.20(c)(2)(vii) (1986); see Davidson, *supra* note 110, at 736-41 (discussing techniques to limit the disclosures resulting from copyright registration). One such technique is to deposit only the object code to preserve trade secret protection for the source code. See *Telex Corp. v. IBM*, 510 F.2d 894, 928-30 (10th Cir. 1975).

¹²⁰ *Board of Trade v. Christie*, 198 U.S. 236, 250-51 (1905); *Data Gen. Corp. v. Digital Computer Controls, Inc.*, 357 A.2d 105 (Del. Ch. 1975).

¹²¹ Compare *Conley & Bryan*, *supra* note 9, at 575 (“[w]ide distribution of software does not foreclose trade secret protection, as long as each recipient is party to an agreement that creates a confidential relationship and substantially limits disclosure of those aspects of the software deemed proprietary”) with *Einhorn*, *supra* note 25, at 526 (“[c]ourts called upon to enforce publisher’s rights in trade secrecy will . . . have to grapple with the problem of whether distribution of thousands of copies of software, where a certain portion of end users will unavoidably not be party to the license agreement, is a situation incompatible with the ‘secrecy’ element required by the trade secret laws”).

¹²² RESTATEMENT OF TORTS § 757 (1939).

¹²³ See R. MILGRIM, *supra* note 99, at §§ 2.04, 3.01, 7.07[1][a]; *Conley & Bryan*, *supra* note 9, at 573-75.

tial information while they remain with the employer,¹²⁴ and for a reasonable period of time after they leave.¹²⁵ While express agreements are obviously preferable,¹²⁶ many courts imply such agreements on appropriate facts.¹²⁷ Many courts draw a distinction between employee-developed trade secrets and ones that the employer merely disclosed in the course of employment. These courts are more likely to limit the employer's rights when the employee has developed the trade secret. In such circumstances, courts may permit disclosure by the employee if the process, not being subject to an express agreement of confidentiality, became a part of the knowledge and skill that the employee rightfully acquired incidental to her employment.¹²⁸ In addition to an employ-

¹²⁴ See R. MILGRIM, *supra* note 99, at §§ 3.03-3.05; Gilburne & Johnston, *supra* note 99, at 220-27.

¹²⁵ Covenants not to compete are enforceable so long as they are reasonable in scope, duration, and geographical reach. See, e.g., Tandy Brands, Inc. v. Harper, 760 F.2d 648 (5th Cir. 1985); *In re Talmage*, 758 F.2d 162 (6th Cir. 1985); Sarnoff v. American Home Prods. Corp., 607 F. Supp. 77 (N.D. Ill. 1985); Stubblefield v. Siloam Springs Newspapers, Inc., 590 F. Supp. 1032 (W.D. Ark. 1984). See generally Blake, *Employee Agreements Not to Compete*, 73 HARV. L. REV. 625 (1960). However, some states, such as California and Michigan, will not enforce such restrictive covenants. Cal. Bus. & Prof. Code §§ 16600-02 (West 1969); Mich. Stats. Ann. § 28.70(1),(2) (Callaghan 1986-87 cum. supp.).

Courts generally view protection of a trade secret as a sufficient basis for upholding restrictive covenants. See *Modern Controls, Inc. v. Andreadakis*, 578 F.2d 1264 (8th Cir. 1978) (need not prove trade secret to enforce covenant not to compete); *A. Hollander & Son, Inc. v. Imperial Fur Blending Corp.*, 2 N.J. 235, 66 A.2d 319 (1949); see also R. MILGRIM, *supra* note 99, at § 3.05; Gilburne & Johnston, *supra* note 99, at 237-39.

¹²⁶ E.g., *SAS Inst., Inc. v. S&H Computer Sys., Inc.*, 605 F. Supp. 816 (M.D. Tenn. 1985).

¹²⁷ E.g., *Q-Co Indus., Inc. v. Hoffman*, 625 F. Supp. 608, 617 (S.D.N.Y. 1985); *Shatterproof Glass Corp. v. Guardian Glass Co.*, 322 F. Supp. 854 (E.D. Mich. 1970), *aff'd*, 462 F.2d 1115 (6th Cir.), *cert. denied*, 409 U.S. 1039 (1972); *Kaufman v. International Business Machs. Corp.*, 97 A.D.2d 925, 470 N.Y.S.2d 720, 723 (1983), *aff'd*, 61 N.Y.2d 930, 474 N.Y.S.2d 721, 463 N.E.2d 37 (1984); R. MILGRIM, *supra* note 99, at §§ 502[1]-502[4]. But see, e.g., *Structural Dynamics Research Corp. v. Engineering Mechanics Research Corp.*, 401 F. Supp. 1102, 1111 (E.D. Mich. 1975); *By-Buk Co. v. Printed Cellophane Tape Co.*, 163 Cal. App. 2d 157, 329 P.2d 147 (1958); *Amoco Prod. Co. v. Lindley*, 609 P.2d 733, 744-45 (Okla. 1980).

¹²⁸ *Futurecraft Corp. v. Clary Corp.*, 205 Cal. App. 2d 279, 284-86, 23 Cal. Rptr. 198, 208-09 (1962); *Wexler v. Greenberg*, 399 Pa. 569, 160 A.2d 430 (1960); see also, e.g., *Si Handling Sys., Inc. v. Heisley*, 753 F.2d 1244, 1264-65 (3d Cir. 1985); *Prudential Ins. Co. v. Crouch*, 606 F. Supp. 464, 469 (S.D. Ind. 1985); *Structural Dynamics*, 401 F. Supp. at 1111-14. But see, e.g., *Sperry Rand Corp. v. Rothlein*, 241 F. Supp. 549, 564-65 (D.Conn. 1964) (barring employee who developed trade secret from disclosing it because of his "fiduciary duty"); *Wireless Specialty Apparatus Co. v. Mica*

ment relationship, the existence of a confidential or fiduciary relationship can establish a duty to keep secret a process or idea disclosed in confidence.¹²⁹

Once the existence of a protectable trade secret is established, the next question is determining the scope of the protection granted. In addition to permitting damages and injunctive relief for a violation of an express agreement by one of the parties to the agreement, courts may imply a confidentiality agreement. Breach of fiduciary duty can also form the basis of wrongful appropriation or disclosure of a trade secret.¹³⁰ Other wrongful activity such as theft or industrial espionage allows a cause of action based on trade secret law.¹³¹ Once there is wrongful conduct on behalf of the person misappropriating the trade secret, subsequent acquisition through lawful means does not preclude liability for violating trade secret rights.¹³²

2. Misappropriation

The tort of misappropriation is another way in which the common law has granted some protection to intellectual property. The misappropriation tort operates regardless of the existence of a trade secret. It consists of three basic elements. First, creators claiming misappropriation must show that they have devoted considerable effort to developing the creation. This is necessary for the court to consider the creation a protectable piece of property. Second, creators must show that the "[d]efendant has appropriated [the "thing"] at little or no cost, such that the court can characterize defendant's actions as 'reaping where it has not sown.'"¹³³ Third, plaintiffs must prove a compensable injury.

The classic 1918 Supreme Court misappropriation case, *Interna-*

Condenser Co., 239 Mass. 158, 131 N.E. 307 (1921); *Extrin Foods, Inc. v. Leighton*, 202 Misc. 592, 115 N.Y.S.2d 429 (1952).

¹²⁹ *E.g.*, *Forest Laboratories, Inc. v. Formulations, Inc.*, 299 F. Supp. 202 (E.D. Wis. 1969), *rev'd in part sub nom.* *Forest Laboratories, Inc. v. Pillsbury Co.*, 452 F.2d 621 (7th Cir. 1971).

¹³⁰ *See* 12 R. MILGRIM, *supra* note 99, at §§ 3.03, 3.05[1], 503[7].

¹³¹ *E.g.*, *E.I. DuPont deNemours & Co. v. Christopher*, 431 F.2d 1012 (5th Cir. 1970), *cert. denied*, 400 U.S. 1024 (1971).

¹³² *Smith v. Dravo Corp.*, 203 F.2d 369, 374 (7th Cir. 1953), *cert. denied*, 358 U.S. 898 (1958); *K & G Oil Tool & Serv. Co. v. E & G Fishing Tool Serv. Co.*, 158 Tex. 594, 602-03, 314 S.W.2d 782, 787-88 (1958), *cert. denied*, 358 U.S. 898 (1958); *Conley & Bryan*, *supra* note 9, at 574-75.

¹³³ J. MCCARTHY, *TRADEMARKS AND UNFAIR COMPETITION* § 10:25, at 322 (1973).

tional News Service v. Associated Press,¹³⁴ involved Associated Press' (AP) allegations that a competing news service was bribing AP's employees to pass on hot news items. The Court first identified the relationship between AP's claim and the copyright laws regarding the literary character of the news items. However, there was no preemption of the misappropriation claim, since the defendant's conduct consisted of independently wrongful activity — the theft of the fruits of AP's labors.¹³⁵ For the same reason, the Court held that the news items' public nature did not diminish AP's claim. AP was not claiming a proprietary right in the information itself so as to prevent defendant from making any use of the news items. Rather, AP simply claimed a right to prevent stealing its employees' services. Defendant could have used the stories based on its own investigation. Further, once AP disseminated its story, although defendant could not infringe upon the copyrighted expression, it certainly could have restated the ideas contained therein. A number of courts read the AP decision very narrowly based on the rationale that one cannot misappropriate information not subject to copyright and thus in the public domain.¹³⁶

The misappropriation theory, while retaining some vitality following the *Associated Press* case,¹³⁷ has been further limited by decisions rec-

¹³⁴ 248 U.S. 215 (1918). See generally Baird, *Common Law Intellectual Property and the Legacy of International News Serv. v. Associated Press*, 50 U. CHI. L. REV. 411 (1983); Rahl, *The Right to "Appropriate" Trade Values*, 23 OHIO ST. L.J. 56 (1962).

¹³⁵ *Associated Press*, 248 U.S. at 236.

¹³⁶ See, e.g., *G. Ricordi & Co. v. Haendler*, 194 F.2d 914 (2d Cir. 1952); *National Comics Publications, Inc. v. Fawcett Publications*, 191 F.2d 594 (2d Cir. 1951); *RCA Mfg. Co. v. Whiteman*, 114 F.2d 86 (2d Cir.), cert. denied, 311 U.S. 712 (1940); *Cheney Bros. v. Doris Silk Corp.*, 35 F.2d 279 (2d Cir. 1929), cert. denied, 281 U.S. 728 (1930). These cases based their rationale on Justice Brandeis' *Associated Press* dissent. See *Associated Press*, 248 U.S. at 248. For cases dealing with the 1976 Copyright Act's preemptive effect, see *infra* notes 141-44.

¹³⁷ E.g., *Standard & Poor's Corp. v. Commodity Exch., Inc.*, 683 F.2d 704 (2d Cir. 1982) (upholding preliminary injunction prohibiting commodity exchange from using Standard & Poor index for publicly traded futures contracts); *Pittsburgh Athletic Co. v. KQV Broadcasting Co.*, 24 F. Supp. 490 (W.D. Pa. 1938) (broadcast of sporting event). Courts have repeatedly recognized the doctrine that "one should not be permitted to reap where he has not sown." See, e.g., *Coca-Cola Co. v. Koke Co. of Am.*, 254 U.S. 143 (1920); *Van Camp Sea Food Co. v. Stewart Org.*, 50 F.2d 976 (3d Cir. 1931); CALLMAN, *supra* note 85, at § 15.04; Callman, *He Who Reaps Where He Has Not Sown: Unjust Enrichment in the Law of Unfair Competition*, 55 HARV. L. REV. 595 (1942); Sell, *The Doctrine of Misappropriation and Unfair Competition*, 11 VAND. L. REV. 483 (1958); *Developments in the Law — Competitive Torts: Misappropriation of Commercial Intangibles*, 77 HARV. L. REV. 888 (1964); see also, e.g.,

ognizing that federal patent or copyright laws preempt the misappropriation tort to the extent that it broadens protection to intellectual property.¹³⁸ One court summarized the precise reach of the preemption doctrine in terms of what has come to be known as the subject matter test:

[I]t is clear that in certain instances, an intellectual property which falls outside the protection of either federal copyright or patent law may still be found to not be entitled protection under state law regardless of theory because federal policy favors preemption of the area in question. It is even clearer, however, that a property which is subject to protection under federal patent or copyright law cannot also obtain the benefit of protection under either state unfair competition or misappropriation law for the same reasons.¹³⁹

As discussed above, the preemption doctrine does not disable state law under which a plaintiff must show something more than the copying of intellectual property.¹⁴⁰ In other words, at least some independent wrongdoing, such as the theft involved in *Associated Press*, is required.

Two plaintiffs have attempted to revive the *Associated Press* doctrine within the context of computer software development. In both instances the claim failed. In one case the court pointed out that since the Copyright Act preempted the claim, the claim was based solely on the "bor-

Dawson, *The Self Serving Intermeddler*, 87 HARV. L. REV. 1409 (1974).

Two writers recently suggested that misappropriation is an appropriate way to deal with the taking of ideas that are not subject to copyright protection. Reback & Hayes, *Copyright Gone Astray: The Misappropriation Alternative*, 3 COMPUTER LAW. 1 (1986).

¹³⁸ E.g., *Compco Corp. v. Day-Brite Lighting, Inc.*, 376 U.S. 234 (1964); *Sears, Roebuck & Co. v. Stiffel Co.*, 376 U.S. 225 (1964). But see *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470 (1974) (trade secret laws not preempted by patent laws); *Goldstein v. California*, 412 U.S. 546 (1973) (California record piracy statute not preempted by federal copyright law); see *infra* notes 141-43.

¹³⁹ *Videotronics, Inc. v. Bend Elecs.*, 564 F. Supp. 1471, 1476 (D. Nev. 1983). The court's statement may go too far insofar as it indicates that any unfair competition claim would be preempted. For example, elsewhere in the opinion the court seems to concede that on appropriate facts, plaintiff could maintain a claim for defendant "palming off" plaintiff's product as the defendant's. *Id.* at 1477-78. With palming off, the plaintiff must prove a misrepresentation as to the product's source or origin and in such a case the law of unfair competition is unlikely to be subject to the preemption doctrine.

¹⁴⁰ E.g., *Whitfield v. Lear*, 751 F.2d 90 (2d Cir. 1984) (misappropriation of ideas actionable when ideas submitted in context justifying recovery under implied-in-fact contract theory); see *supra* text accompanying notes 112-15. But see *Universal City Studios, Inc. v. T-Shirt Gallery, Ltd.*, 634 F. Supp. 1468, 1474-76 (S.D.N.Y. 1986) (state cannot regulate otherwise permissible conduct merely by categorizing it as "unfair" or "immoral").

rowing" of portions of plaintiff's copyrightable program.¹⁴¹ In the other case, the court found that copyright laws preempted the state law of misappropriation with regard to input formats that the copyright laws addressed but did not protect.¹⁴² The court reasoned that although recognizing the misappropriation doctrine would further the federal policy of protecting creativity, this consideration was insufficient to validate the state law. The court viewed recognizing the misappropriation doctrine as shifting the balance too far away from society's interest in advancing knowledge.

Although there may not be much room for applying the tort of misappropriation, state laws governing unfair competition and passing off may apply to copying or misappropriation when combined with predatory or other independently wrongful acts.¹⁴³ Not all courts apply the preemption doctrine broadly in cases involving copyright law. Thus, for example, authority exists for the proposition that if federal copyright law does not cover the subject matter, courts should consider the state misappropriation claim.¹⁴⁴ Similarly, another court held that since

¹⁴¹ *Videotronics*, 564 F. Supp. at 1471; *see also* *Hartman v. Hallmark Cards, Inc.*, 639 F. Supp. 816 (W.D. Mo. 1986).

¹⁴² *Synercom Technology, Inc. v. University Computing Co.*, 474 F. Supp. 37 (N.D. Tex. 1979); *see supra* text accompanying note 74. For cases agreeing with *Synercom* that section 301 of the Copyright Act has a broad preemptive effect as to misappropriation law, *see* *Mitchell v. Penton/Indus. Publishing Co.*, 486 F. Supp. 22 (N.D. Ohio 1979); *Orth-O-Vision, Inc. v. Home Box Office, Inc.*, 474 F. Supp. 672, 683-84 (S.D.N.Y. 1979).

One commentator concludes that too few cases exist to draw any conclusions regarding the Copyright Act's preemptive effect. 2 CALLMAN, *supra* note 85, § 15.08 at 24.

¹⁴³ *See, e.g.*, *Gemveto Jewelry Co. v. Jeff Cooper, Inc.*, 613 F. Supp. 1052, 1064 (S.D.N.Y. 1985); *see also, e.g.*, *Universal City Studios, Inc. v. T-Shirt Gallery, Ltd.*, 634 F. Supp. 1468, 1475 (S.D.N.Y. 1986):

[A] state law cause of action is preempted only if the state law creates rights that are "equivalent to any of the exclusive rights within the general scope of copyright." A state right is equivalent to the copyright if the state right "is infringed by the mere act(s) of reproduction, performance, distribution or display." On the other hand, if the state law violation requires an extra qualitative element beyond those acts, preemption will not apply (citations omitted).

The decision stated that categorizing the misappropriation as unfair or immoral is not insufficient. *Id.* at 1476.

¹⁴⁴ *See, e.g.*, *Financial Information, Inc. v. Moody's Investor Serv., Inc.*, 751 F.2d 501, 510 (2d Cir. 1984) (misappropriation and copyright infringement claim of factual data compilation regarding publicly traded bonds; "FII has alleged in essence that Moody's unlawfully misappropriated its copyrighted material. If FII does prevail on its federal claim, the New York state claim will be preempted; if it does not prevail, the state claim will have to be considered"); *Rand McNally & Co. v. Fleet Management*

copyright laws do not protect ideas, they do not preempt state law barring the misappropriation of ideas.¹⁴⁵ When placing this narrow view of preemption in the context of computer software, it is at least arguable that since ideas are not subject to copyright protection, processes such as programming techniques and subroutines may be subject to misappropriation claims.¹⁴⁶ However, many courts have adopted the broader subject matter test for preemption, which views the issue as whether the work as a whole is in a form susceptible to copyright.¹⁴⁷ Under this view, ideas contained in an original work cannot be the subject of a misappropriation claim absent a showing of independent wrongdoing.

"Passing off" laws are analogous to trademark law in that they give a product's producer or distributor protection against a competitor's passing off the product as her own.¹⁴⁸ Passing off laws granting such protection generally speak of preventing a confusion of source or origin of the product in question.¹⁴⁹ The law of unfair competition thus protects a software distributor against unfair marketing practices, but does not give any additional protection to the software's intellectual property content. In contrast, the law of trade secrets can provide significant protection. Trade secret protection appears feasible even in the context of mass marketed software. However, since trade secret law hinges on the

Sys., Inc., 591 F. Supp. 726, 739 (N.D. Ill. 1983).

¹⁴⁵ See, e.g., *Eltra Corp. v. Ringer*, 579 F.2d 294 (4th Cir. 1978) (discussing the copyrightability of a work of art); *Leonard Storch Enters., Inc. v. Mergenthaler Linotype Co.*, 202 U.S.P.Q. 623 (E.D.N.Y. 1979).

¹⁴⁶ One court distinguished between whether the object of the misappropriation claim is subject to or excluded from copyright protection. *Rand McNally & Co. v. Fleet Management Sys., Inc.*, 591 F. Supp. 726, 739 (N.D. Ill. 1983). Under this subject matter preemption test, misappropriation of ideas can be actionable. *But see Universal City Studios, Inc. v. T-Shirt Gallery, Ltd.*, 634 F. Supp. 1468, 1475-76 (S.D.N.Y. 1986).

¹⁴⁷ *Ehat v. Tanner*, 780 F.2d 876, 878 (10th Cir. 1985) ("[l]iterary works, including compilations and derivative works, are within the subject matter of copyright if they are original works of authorship fixed in any tangible medium of expression. This is so notwithstanding the material could not be copyrighted . . .") (citations omitted).

¹⁴⁸ Unfair competition law concerning passing off is designed to protect someone who has developed and marketed a product or service against someone else reaping from the seeds sown by the first. This is an extension of the proposition that one cannot sell another's products claiming them as her own. *E.g.*, *Elgin Nat'l Watch Co. v. Illinois Watch Case Co.*, 179 U.S. 665 (1901); *White Studio v. Dreyfoos*, 221 N.Y. 46, 116 N.E. 796 (1917). See generally 1 CALLMAN, *supra* note 85, at §§ 2.01-2.02.

¹⁴⁹ This is similar to trademark and unfair competition law protection. See, e.g., *Estate of Pressley v. Russen*, 513 F. Supp. 1339, 1373 (D.N.J. 1981); *Fotomat Corp. v. Photo Drive-Thru, Inc.*, 425 F. Supp. 693, 709 (D.N.J. 1977).

proprietor's efforts to maintain secrecy and to police violations of secrecy, the contractual provisions accompanying software dissemination can become crucial in determining both the existence and the scope of the trade secret protection.

II. UTILIZING THE LAW OF CONTRACTS

A. *Overview of the Law Relating to Computer Contracts and Licensing*

As the foregoing discussion reveals, copyright laws, even when supplemented with trade secrets laws, have not yet caught up with technology in terms of defining the scope of protection for the intellectual property content of computer software. The courts, and perhaps Congress, should assess the various competing interests and develop a better defined and hence more predictable set of rules governing the scope of software protection. Independent of such law reform action, contract law may help private parties deal with the issues.

Various drafting techniques, some of which software merchants have used, can clarify the issues and fill some of the gaps left open by copyright law. The major issues that contractual provisions can address include: (1) defining the limits of permissible copying by the rightful owner of a copy of the program,¹⁵⁰ (2) protecting the program's structure, including functional subroutines whose copyrightability may be questionable,¹⁵¹ and (3) protecting the screen images and input routines as well as the underlying source code.¹⁵² Before addressing these issues directly, it is important to briefly examine the developing law relating to the treatment of computer software contracts and licenses in general.

Software developers can employ licensing arrangements, among other things, to define and/or limit the user's right to copy and/or modify the computer software covered by the license. This is so because the use of a license avoids applying the "first sale" doctrine.¹⁵³ The use of a license also permits altering the right of the rightful owner of a copy of a copyrighted work to transfer it through rental or resale.¹⁵⁴

A number of issues can arise under a license arrangement limiting

¹⁵⁰ See *infra* text accompanying notes 193-94.

¹⁵¹ See *supra* text accompanying notes 101-11.

¹⁵² See *supra* text accompanying notes 81-87, 95-100; *cf.* Synercom Technology, Inc. v. University Computing Co., 474 F. Supp. 37, 42 (N.D. Tex. 1979) (protecting input routines under state misappropriation law preempted by federal copyright law).

¹⁵³ See *supra* text accompanying notes 23-25.

¹⁵⁴ See 3 M. NIMMER, *supra* note 25, at § 10.01-.10; Brooks, *supra* note 27, at 17; Sherman, *supra* note 27, at 543-45.

the rights that would accompany an outright sale. These issues include the contract doctrine of unconscionability¹⁵⁵ and preemption by the Copyright Act.¹⁵⁶ Specifically, because of the transactions' subject matter, undue restrictions on the use of software arguably offend the policy of the copyright laws, rendering the restrictions unenforceable as contrary to public policy.

B. Enforceability of Restrictive License Agreements

The distribution chain for copyrighted works frequently involves numerous parties, and contractual arrangements generally govern their respective roles. For example, publishing contracts may involve transferring the copyright from the author to the publisher. Alternatively, the author may give the publisher a license to distribute the copyrighted work. Distributors have used licensing agreements not only to define the scope of the intellectual property protections in disseminating computer software, but also to define the law applicable to contact between the software's supplier and the end user.

One of the many questions surrounding contracting for computer software involves determining what law governs. In every state except Louisiana, Article 2 of the U.C.C. governs transactions involving the sale of goods.¹⁵⁷ Whether the sale of computer software is a sale of goods subject to Article 2 is unclear.¹⁵⁸ The courts generally have found that computer programming contracts calling for substantial amounts of service, such as contracts to develop special applications programs, are

¹⁵⁵ See RESTATEMENT (SECOND) OF CONTRACTS § 208; U.C.C. § 2-302 (1977). See generally Ellinghaus, *In Defense of Unconscionability*, 78 YALE L.J. 757 (1969); Leff, *Unconscionability and the Code — The Emperor's New Clause*, 115 U. PA. L. REV. 485 (1967); Murray, *Unconscionability, Unconscionability*, 31 U. PITT. L. REV. 1 (1969); Schwartz, *A Reexamination of Nonsubstantive Unconscionability*, 63 VA. L. REV. 1053 (1977); Spanogle, *Analyzing Unconscionability Problems*, 117 U. PA. L. REV. 931 (1969); Speidel, *Unconscionability, Assent and Consumer Protection*, 31 U. PITT. L. REV. 359 (1970). But see Note, *The Protection of Computer Software Through Shrink-Wrap License Agreements*, 42 WASH. & LEE L. REV. 1347, 1378 (1985) [hereafter, Note, *License Agreements*] (suggesting that unconscionability should not be a problem).

¹⁵⁶ 17 U.S.C. § 301 (1982) provides that the Act has a preemptive effect as to protecting copyrightable material. See Einhorn, *supra* note 25, at 520. For a more general discussion of preemption, see *supra* notes 139-40.

¹⁵⁷ 1, 1A Uniform Laws Ann. (1968 & Supp. 1986).

¹⁵⁸ See generally Note, *Computer Software as a Good Under the Uniform Commercial Code: Taking a Byte out of the Intangibility Myth*, 65 B.U.L. REV. 129 (1985) [hereafter Note, *Taking a Byte*]; Note, *Computer Programs as Goods Under the U.C.C.*, 77 MICH. L. REV. 1149 (1979).

not subject to the Code.¹⁵⁹

When the transaction takes the form of an outright sale of the program (perhaps with incidental services), the better view is that the U.C.C.'s provisions dealing with goods should apply.¹⁶⁰ Software unquestionably possesses several unique aspects, including the issue of whether its intangible nature precludes classifying it as "goods" under Article 2. However, the U.C.C.'s applicability is not necessarily tied to the question of whether software is tangible, since courts can adopt the U.C.C. by analogy. Since the Code provides a more predictable set of rules than contract law generally, it presents a sound basis for resolving software disputes. Thus, because contracts dealing with transfers of computer software at least closely resemble the sale of goods, courts should apply Article 2's provisions as a matter of convenience. The Code was designed to deal with commercial transactions of the type involved in software distribution.¹⁶¹ One writer suggests, for example, that the purchaser's perception should have a major role in determining how to characterize a software transaction for purposes of the U.C.C.¹⁶²

Determining that the U.C.C.'s provisions apply to transactions involving software does not end the inquiry. The next question is whether the transaction takes the form of a sale. If not, many of the U.C.C.'s most important provisions would not apply. Accordingly, by framing the transaction as a license rather than a sale, a software distributor can opt out of many of the U.C.C.'s provisions.

Software distributors' major concern over the U.C.C.'s applicability

¹⁵⁹ See, e.g., *Computer Servicecenters, Inc. v. Beacon Mfg. Co.*, 328 F. Supp. 653 (D.S.C. 1970), *aff'd*, 443 F.2d 906 (4th Cir. 1971).

¹⁶⁰ See, e.g., *RRX Indus., Inc. v. Lab-Con, Inc.*, 772 F.2d 543, 546 (9th Cir. 1985); *Burroughs Corp. v. Joseph Uram Jewelers, Inc.*, 305 So. 2d 215 (Fla. Dist. Ct. App. 1974); *W.R. Weaver Co. v. Burroughs Corp.*, 580 S.W.2d 76 (Tex. Civ. App. 1979); Note, *Taking a Byte*, *supra* note 158; cf. *Hartford Mut. Ins. Co. v. Seibels, Bruce & Co.*, 579 F. Supp. 135 (D. Md. 1985) (whether software constituted goods was question of fact for jury); *Carl Beasley Ford, Inc. v. Burroughs Corp.*, 361 F. Supp. 325, (E.D. Pa. 1973), *aff'd mem.*, 493 F.2d 1400 (3d Cir. 1974) (sale of hardware rather than software); *National Surety Corp. v. Allied Sys., Inc.*, 418 So.2d 847 (Ala. 1982) (tort of conversion applies since computer software is a good).

¹⁶¹ See Holmes, *Application of Article Two of the Uniform Commercial Code to Computer Software Acquisitions*, RUT. COMP. & TECH. L.J. 1, 15 (1982); Report, *Software as Goods Under the Uniform Commercial Code*, 40 REP. 754 (1985) (recommendation of Bar Association of New York City); Note, *Taking a Byte*, *supra* note 158.

¹⁶² Chandler, *Computer Transactions: Potential Liability of Computer Users and Vendors*, 1977 WASH. U.L.Q. 405, 421 (1977).

likely involves the warranty provisions applying to the sale of goods.¹⁶³ The U.C.C.'s warranty provisions do not apply to leases or other non-sale transactions.¹⁶⁴ Accordingly, if a court recognizes a license agreement as not involving a sale, the U.C.C.'s provisions would not apply even if the court characterized software as a good.¹⁶⁵ However, once again, even if the U.C.C.'s warranty provisions do not directly apply to a license transaction, a court may still wish to apply them by analogy or, alternatively, simply recognize a comparable common law warranty.¹⁶⁶ It is important to keep in mind that even if a court characterizes a software license as a sale for purposes of the U.C.C., the transaction may not necessarily constitute a sale under the Copyright Act's first sale doctrine.¹⁶⁷

When dealing with mass marketed licensing arrangements, not only do the unconscionability issues become more pressing,¹⁶⁸ but serious questions may arise relating to contract formation. Specifically, can the

¹⁶³ *E.g., id.*; Comment, *Liability for Defects in Computer Software*, 53 J. URBAN L. 279 (1975). For discussion of the Code and warranties generally, see J. WHITE & C. SUMMERS, *HORNBOOK ON THE UNIFORM COMMERCIAL CODE* §§ 9-10 - 9-13 (1980). In addition to the Code's warranty provisions, at the federal level the Magnuson-Moss Act limits the ability to disclaim implied warranties. 15 U.S.C. § 2308 (1982).

¹⁶⁴ *E.g.,* K-B Trucking Co. v. Riss Int'l Corp., 763 F.2d 1148, 1164 (10th Cir. 1985); Royal Typewriter Co. v. Xerographic Supplies, 719 F.2d 1092, 1100 (11th Cir. 1983); Martin v. Ryder Truck Rental, Inc., 353 A.2d 581, 584 (Del. 1976); All-States Leasing Co. v. OCHS, 42 Or. App. 319, 334-36, 600 P.2d 899, 909 (1979); *see infra* note 166.

¹⁶⁵ One writer suggests treating software licenses as sales under the Code. Note, *License Agreements*, *supra* note 155, at 1370; Note, *"Box-Top" License Agreements*, *supra* note 27, at 881; *see also* Comment, *Enforceability of Box-Top Licenses: A Proposal to End the Dilemma*, 2 SANTA CLARA COMPUTER & HIGH TECH. L.J. 171 (1986).

¹⁶⁶ Redfern Meats, Inc. v. Hertz Corp., 134 Ga. App. 381, 393, 215 S.E.2d 10, 18-19 (1975); Glenn Dick Equip. Co. v. Galey Constr. Co., 97 Idaho 216, 222-23, 225, 541 P.2d 1184, 1190-91, 1193 (1975); All States Leasing Co. v. Bass, 96 Idaho 873, 877-81, 538 P.2d 1177, 1181-85 (1975); Michigan Mut. Liab. Ins. Co. v. Freuhauf Corp., 63 Mich. App. 109, 118, 234 N.W.2d 424, 428 (1975); Nevada Nat'l Bank v. Huff, 94 Nev. 506, 512, 582 P.2d 364, 369 (1978).

¹⁶⁷ *See* 17 U.S.C. § 109(a) (1982); *supra* note 19; *infra* note 177. In addition to the preemption doctrine, such statutes might run afoul of the Commerce Clause. Specifically, one could argue that state-to-state variations in the validity of restrictive licensing arrangements pose an undue burden on interstate commerce, especially in light of the interest in uniformity prompted by the Copyright Act. *Cf. Edgar v. MITE Corp.*, 457 U.S. 624 (1982) (invalidating state tender offer statutes under the commerce clause in light of national uniformity interests and the policy of the Securities Exchange Act of 1934).

¹⁶⁸ *See, e.g.,* Speidel, *supra* note 155.

software distributor bind a purchaser to the license's terms by virtue of the purchaser's act of opening the software package? Even assuming that the distributor gives adequate notice of the license, the licensee could challenge the agreement as an adhesion contract.¹⁶⁹ The inability to negotiate is one benchmark of an unenforceable adhesion contract,¹⁷⁰ and since software is generally distributed by retailers not possessing authority to change the terms of a licensing arrangement, the doctrine may be applicable.

State legislatures have reacted to the use of shrink wrap or box top licenses by passing legislation addressing both contract formation and unconscionability. Specifically, Louisiana and Illinois have enacted statutes¹⁷¹ validating shrink wrap licenses, while the California legislature has refused to follow suit.¹⁷² Under the Louisiana statute, which served as the model for the others, a shrink wrap license is valid provided the package gives clear notice. Given appropriately clear notice on the package,¹⁷³ the license may: (1) provide that ownership of the software remains with the licensor, (2) prohibit or limit the copying of the program, (3) prohibit or limit user modification of the software, (4) prohibit or limit transfer of the licensee's rights,¹⁷⁴ and (5) provide for the

¹⁶⁹ E.g., *Henriouille v. Marin Ventures, Inc.*, 20 Cal.3d 512, 573 P.2d 465, 143 Cal. Rptr. 247 (1978) (invalidating exculpatory clause in residential lease); *Klar v. H&M Parcel Room, Inc.*, 270 A.D. 538, 61 N.Y.S.2d 285, *aff'd mem.*, 296 N.Y. 1044, 73 N.E.2d 912 (1947) (disclaimer on parcel claim check held invalid because inadequate notice of contract's special nature). *But see* *O'Callaghan v. Waller & Beckwith Realty Co.*, 15 Ill. 2d 436, 155 N.E.2d 545 (1958) (upholding exculpatory clause in apartment rental agreement). *See generally* Kessler, *Contracts of Adhesion — Some Thoughts About Freedom of Contract*, 43 COLUM. L. REV. 629 (1943); Oldfather, *Toward a Usable Method of Judicial Review of the Adhesion Contractor's Lawmaking*, 16 U. KAN. L. REV. 303 (1968).

¹⁷⁰ E.g., *Henningsen v. Bloomfield Motors, Inc.*, 32 N.J. 358, 161 A.2d 69 (1960) (invalidating warranty disclaimer).

¹⁷¹ ILL. STAT. ch. § 29 802 (1986 Supp.); LA. REV. STATS. ANN. tit. 51 §§ 1961-66 (West Supp. 1986). Significantly, Louisiana is the only state not to have enacted article 2 of the Uniform Commercial Code.

¹⁷² *See* Swartz, *The "Shrink Wrap" Software License: Protection or Rip-off?*, COM-MODORE MICROCOMPUTERS 96, 97 (January, February 1986). Similar legislation is or has been under consideration in Arizona, California, Georgia, Hawaii, Illinois and Washington. *Id.*

¹⁷³ The notice must prominently appear on the package in all capital letters, clearly explaining the consequences of acceptance of the terms by opening the package. The notice must also explain that the user may return the unopened package and receive a refund. LA. REV. STATS. ANN. tit. 51 § 1963 (West Supp. 1986).

¹⁷⁴ The transfer restrictions cannot, however, extend to a transfer "in connection with the sale or transfer by operation of law of all or substantially all of the operating

license's automatic termination upon breach by the licensee of any of its provisions.¹⁷⁶ Under such a statute the software's licensor can clearly limit the software's use more severely than under copyright law, unless a court finds that such an application of the statute is preempted by copyright law.¹⁷⁶

The use of mass marketed shrink wrap licenses adds additional issues to the enforceability of restrictive software licenses. However, the copyright related issues seemingly do not depend upon whether the restrictions are contained in bargained-for agreements, or are part of a shrink wrap license.

*C. Contractual Limitations on Use and Dissemination: The
Preemptive Effect of Federal Copyright Law and Public Policy
Considerations*

As noted earlier, the first sale doctrine gives the rightful owner of a copy the right to make archival copies, and also to transfer the rightfully owned copy through sale, lease or otherwise.¹⁷⁷ However, the copyright owner can contractually restrict the dissemination of copyrighted material. Thus, for example, distribution licenses defining the rights among and between the various parties in the distribution chain are quite common. The copyright laws do not preempt ordinary licensing arrangements or other contractual restrictions.¹⁷⁸ The question arises, however, whether severe contractual restrictions conflict with the careful balance drawn by the copyright laws between the copyright owner's property rights and the public's right to information.¹⁷⁹ In an

assets of a licensee's business." *Id.* at § 1964(4).

¹⁷⁶ *Id.* at § 1964(5).

¹⁷⁶ See Note, "Box-Top" License Agreements, *supra* note 27, at 911.

¹⁷⁷ 17 U.S.C. §§ 106(3), 109(a) (1982).

¹⁷⁸ There is legislative history to the effect that end-user limitations are permissible. See H.R. Rep. No. 94-1476, 94th Cong., 2d Sess. 1, 79 (1976) ("This does not mean that the conditions of the future disposition of copies . . . imposed by a contract between buyer and seller, would be unenforceable between the parties as a breach of contract, but it does mean that they cannot be enforced by an action for infringement of copyright"). *Accord* *Fantastic Fakes, Inc. v. Pickwick Int'l, Inc.*, 661 F.2d 479, 483 (5th Cir. 1981) ("while the context of copyright law in which the agreement exists cannot be overlooked, application of Georgia rules to determine parties' contractual intent is not preempted"); *cf.* *Aronson v. Quick Point Pencil Co.*, 440 U.S. 257 (1979) (patent law does not preempt contractual royalty during pendency of patent application).

¹⁷⁹ See *Fantastic Fakes*, 661 F.2d at 483 ("It is possible to hypothesize situations where application of particular state rules of construction would so alter rights granted by the copyright statutes as to so invade the scope of copyright law or violate its policies").

analogous situation, a court has invalidated a contractual license for a duration longer than the life of the underlying patent.¹⁸⁰

The Supreme Court has held that attempting to extend the monopoly granted by a patent beyond its seventeen year duration is invalid. Thus, a license/royalty agreement requiring payment beyond the patent's life is unenforceable.¹⁸¹ Such an agreement is contrary to the policy and purpose of federal patent law.¹⁸² In contrast, when multiple patents are involved and some have not yet expired, courts will enforce a license agreement and royalty arrangement extending beyond the life of the expired patents.¹⁸³ The rule limiting the duration of a royalty agreement does not apply when the patent is a use license for unpatented works,¹⁸⁴ or when a patent is applied for but never issued.¹⁸⁵ Thus, the Court upheld a use license in which the patent was never issued, notwithstanding the claim that there was no trade secret since the product's design was obvious.¹⁸⁶ The Court pointed out that the licensee was able to preempt the market by making the product while the patent application was pending. Thus, the court required royalty payments even though the patent was never issued.¹⁸⁷ Courts have used the same rationale to uphold royalty payments far beyond the time period during which a nonpatented process is a trade secret.¹⁸⁸

¹⁸⁰ *Boggild v. Kenner Prods.*, 776 F.2d 1315 (6th Cir. 1985). Courts will uphold a license exceeding the patent period only when a patent was never issued. *Id.* at 1319 (citing *Aronson v. Quick Point Pencil Co.*, 440 U.S. 257 (1979)).

¹⁸¹ *Brulotte v. Thys Co.*, 379 U.S. 29 (1964); *see also, e.g.*, *Pitney Bowes, Inc. v. Mestre*, 701 F.2d 1365 (11th Cir. 1985); *Pipkin v. FMC Corp.*, 427 F.2d 353 (5th Cir. 1970); *Ar-Tik Sys., Inc. v. Dairy Queen, Inc.*, 302 F.2d 496 (3d Cir. 1962).

¹⁸² *Brulotte*, 379 U.S. at 32; *Scott Paper Co. v. Marcalus Co.*, 326 U.S. 249, 256 (1945); *Horwitt v. Movado Watch Agency, Inc.*, 62 F.R.D. 5, 7 (S.D.N.Y. 1974).

¹⁸³ *See Beckman Instruments, Inc. v. Technical Dev. Corp.*, 433 F.2d 55 (7th Cir. 1970); *McCullough Tool Co. v. Well Surveys, Inc.*, 343 F.2d 381 (10th Cir. 1965).

¹⁸⁴ *Brulotte*, 379 U.S. at 32.

¹⁸⁵ *Aronson v. Quick Point Pencil Co.*, 440 U.S. 257 (1979).

¹⁸⁶ *Id.*

¹⁸⁷ *Id.* The case involved a useful but obvious key chain design.

¹⁸⁸ *See, e.g.*, *Warner-Lambert Pharmaceutical Co. v. John J. Reynolds, Inc.*, 178 F. Supp. 655 (S.D.N.Y. 1959), *aff'd per curiam*, 280 F.2d 197 (2d Cir. 1960), noted in 74 HARV. L. REV. 409 (1960). In *Warner*, the court upheld a royalty agreement from the 1881 transfer of Listerine's trademark and formula, even though the formula had become public knowledge. The royalty agreement had no specified duration, and the court held that it was effective so long as Listerine is marketed.

1. Some General Principles

The foregoing patent and trade secret cases provide some general principles. First, if the owner of a process elects patent law protection, she cannot extend that protection beyond the scope and duration of the limited statutory monopoly.¹⁸⁹ Extending this rationale to the limited monopoly granted under the copyright laws seems reasonable.¹⁹⁰

The question thus becomes the extent to which someone who decides to rely on copyright law protection rather than trade secret law can, through a license or other contractual agreement, provide protection for the copyrighted work greater than that granted under the Copyright Act. The cases limiting patent licensing agreements along with first sale doctrine rights provide an argument that restrictive terms of license agreements to end users of software may not be enforceable. The types of provisions that are subject to attack include restricting the software's transfer, limiting the software's use to a single machine and thus purporting to preclude the licensee from transporting the program disk from one machine to another; and prohibiting the making of back-up or archival copies. The nonenforceability of such restrictive agreements may gain some support from a recent decision upholding contractual restrictions on copying and redistribution but conditioning the ruling on finding a valid copyright.¹⁹¹ Although the court did not explain the basis for this condition, an arguable rationale is that a licensing agreement cannot create greater rights than a valid copyright would provide.

¹⁸⁹ With regard to patent protection scope, a line of cases holds that attempts to overextend patent protection can violate the federal antitrust laws. *See, e.g.,* *Digitune Corp. v. Data Gen. Corp.*, 734 F.2d 1336 (9th Cir. 1984) (finding illegal tying arrangement and presuming existence of market power from existence of copyright); Note, *Tying Arrangements and the Computer Industry: Digitune Corp. v. Data Gen. Corp.*, 1985 DUKE L.J. 1027. *See generally* P. AREEDA & D. TURNER, *ANTITRUST LAW* Ch. 7-7B (1978); W. BOWMAN, *PATENT AND ANTITRUST LAW* (1973); Kaplow, *The Patent-Antitrust Intersections: A Reappraisal*, 97 HARV. L. REV. 1815 (1984); McGrath, *Patent Licensing Today: A Fresh Look at Antitrust Principles in a Changing Economic Environment*, 82 PAT. & T.M. REV. 355 (1984).

Similar problems can arise in the copyright law context. *See, e.g.,* Sommer, *Patent License Restrictions*, 59 CONN. B.J. 235 (1985); Note, *CBS v. ASCAP: Blanket Licensing and the Unresolved Conflict Between Copyright and Antitrust Law*, 13 CONN. L. REV. 465 (1981); Note, *Blanket Licensing: The Clash Between Copyright Protection and the Sherman Act*, 55 NOTRE DAME L. REV. 729 (1980).

¹⁹⁰ *See* *April Prods. v. G. Schirmer, Inc.*, 308 N.Y. 366, 126 N.E.2d 283 (1955) (indicating that as a general proposition there is no obligation to pay royalties pursuant to a copyright license after the expiration of the underlying copyright).

¹⁹¹ *S&H Computer Sys., Inc. v. SAS Inst., Inc.*, 568 F. Supp. 416, 420-21 (M.D. Tenn. 1983).

Accordingly, a court could view the more restrictive licenses as contrary to the policy of the copyright laws and thus unenforceable.¹⁹²

Another basis for refusing to enforce restrictive terms in software licensing agreements is treating the purported license as a sale for purposes of the first sale doctrine.¹⁹³ Especially when the copyright owner gives the license to the end user rather than to a distributor or other middle person, the agreement between the copyright owner and the end user resembles a sale. This might be referred to as a "de facto" sale doctrine.

However, when the license in question is a true license rather than a sale disguised to avoid limitations of the copyright laws, courts would not invoke the first sale doctrine. Courts generally hold that transferring title triggers the first sale doctrine.¹⁹⁴ On the other hand, the absence of a formal transfer of title need not preclude applying the doctrine when the transaction bears all of the other benchmarks of a sale. Determining whether a sale took place should not depend upon whether title transferred. Rather, it should depend on whether the transaction is in substance a sale.

Just as books, phono records, and audio and video tapes are generally transferred to the end user in a sale — as opposed to a licensing transaction — transferring software to the end user might create a presumption in favor of a sale. The transferor would then have the burden of showing that in substance the transaction is something other than a sale. Such a "true license" exists, for example, with a site license when the licensee is paying for the right to make copies and use the software on a large number of machines.¹⁹⁵ Similarly, when the software's transfer is combined with a large service or maintenance component, the

¹⁹² The void as against public policy approach is a variation on the potential preemption argument discussed *supra* in text accompanying notes 138-46.

¹⁹³ Many commentators have suggested a similar approach regarding whether a license is a sale under the Uniform Commercial Code. See *supra* note 161. See generally 6A A. CORBIN, CORBIN ON CONTRACTS § 1375 (1962).

¹⁹⁴ See, e.g., *United States v. Powell*, 701 F.2d 70, 72-73 (8th Cir. 1983); *American Int'l Pictures, Inc. v. Foreman*, 576 F.2d 661 (5th Cir. 1978); *United States v. Drebin*, 557 F.2d 1316, 1330 (9th Cir. 1977); *Harrison v. Maynard, Merrill & Co.*, 61 F. 689 (2d Cir. 1894); *Burke & Van Heusen, Inc. v. Arrow Drug Co.*, 233 F. Supp. 881, 883 (E.D. Pa. 1964); *United States v. Wells*, 176 F. Supp. 630, 634 (S.D. Tex. 1959); 2 M. NIMMER, *supra* note 25, at § 8.12[B][1].

¹⁹⁵ Cf. *United States v. Wise*, 550 F.2d 1180, 1190 (9th Cir.), *cert. denied*, 434 U.S. 929 (1977) (bona fide license does not trigger first sale doctrine); *Hampton v. Paramount Pictures Corp.*, 279 F.2d 100, 103 (9th Cir. 1960) (contract that expressly "licensed" right to make reproductions not construed as assignment of rights sufficient to constitute sale).

transaction is more properly viewed as a license than an outright sale.

Beyond such bona fide licensing arrangements, courts should fashion a rule that would apply the first sale doctrine to a transaction that is in substance a sale, although cast in terms of a licensing agreement. The suggested de facto sale approach seems especially appropriate to a mass marketed license when the user may well believe that a sale is taking place. Even aside from the mass marketing context, the copyright law policies favoring a limitation on the copyright monopoly's scope warrant applying the first sale doctrine flexibly. The law's prohibitions against direct copying and creating infringing derivative works give copyright owners a sufficient economic stake in their work without unduly restricting purchaser use of the program.

Limiting the distributor's ability to restrict the rights that would be granted under the first sale doctrine can be accomplished in one of two ways. The courts could reach such a result either by relying upon a preemption rationale or by voiding the restrictions as contrary to public policy. A contractual provision restrictive enough to upset the copyright laws' balance between the creator's and the public's rights may warrant a preemption approach.

The second approach to limiting the distributor's ability to restrict first sale rights, applying public policy analysis, gives the courts wider discretion in striking down provisions than the more narrowly defined preemption approach. The preemption approach is mandatory rather than discretionary. If a federal statute preempts a state statute or a contractual provision, the state statute or contractual provision is per se invalid. In contrast, in deciding whether a contractual provision violates public policy, the courts are not so much bound by doctrinal limitations as they are asked to look to all available evidence of the applicable policy.¹⁹⁶

In deciding whether a contractual provision is unenforceable as contrary to public policy, a number of considerations come into play, including legislation defining the policy.¹⁹⁷ Copyright laws' balancing can be viewed as such policy-defining legislation. In other situations, courts have ruled contracts that appear valid under state law void as against the public policy of a federal statute.¹⁹⁸ However, to adopt the public

¹⁹⁶ RESTATEMENT (SECOND) OF THE LAW OF CONTRACTS § 178 (1981); *Anaconda Federal Credit Union #4401 v. West*, 157 Mont. 175, 178, 483 P.2d 909, 911 (1971). See generally 6A A. CORBIN, *supra* note 193, at § 1375; Gelhorn, *Contracts and Public Policy*, 35 COLUM. L. REV. 679 (1935).

¹⁹⁷ RESTATEMENT (SECOND) OF THE LAW OF CONTRACTS § 179(a) (1981).

¹⁹⁸ For example, an agreement by an issuer of securities to indemnify an under-

policy approach, a court would have to find the state law policy consistent with the federal policy suggested above. Evidence of a contrary state policy would remove the court's discretion to void such provisions (short of invoking the preemption doctrine). Thus, for example, when a state adopts legislation attempting to validate mass marketed licenses,¹⁹⁹ a court cannot rely on a public policy argument to void such licenses. The court would have to enforce the license unless it found that the Copyright Act preempted both the contract and the legislation.

In addition to a preemption attack on the shrink wrap statutes, a court might entertain the argument that since software mass marketing primarily involves interstate commerce, the absence of uniformity renders the legislation invalid as an undue interference with interstate commerce. The Supreme Court recently used this approach in striking down state tender offer statutes that were more restrictive than the federal securities laws.²⁰⁰ Arguably, potential state-to-state shrink wrap license variations render state legislation in this area invalid as an undue burden on commerce.

The courts thus have alternative means for limiting the scope of broadly drafted contractual restrictions on the use and dissemination of copyrighted computer programs. Given this potential, the question becomes whether courts should utilize it. The following section recommends that under the aegis of a de facto sale approach, the courts can enforce reasonable contractual limitations without impinging on the balances drawn by the Copyright Act.

D. The Enforceability of Restrictive Contractual Provisions — A Suggested Approach

There are two varieties of contractual restrictions on the use and dissemination of computer programs. The first restriction involves limitations on making archival copies or reselling the program to third parties.²⁰¹ Licenses may embody these restrictions to avoid the first sale

writer for liabilities arising under the federal securities laws has been held void as against public policy. *Globus v. Law Research Serv., Inc.*, 418 F.2d 1276 (2d Cir. 1969), *cert. denied*, 397 U.S. 913 (1970). The reasoning of the *Globus* case is that since the federal securities laws set out a high standard of care for underwriters, an indemnification agreement is likely to undercut that standard by limiting the underwriters' stake. *See generally* T. HAZEN, *HORNBOOK ON THE LAW OF SECURITIES REGULATION* § 7.9 (1985).

¹⁹⁹ *See supra* notes 171-73.

²⁰⁰ *Edgar v. MITE Corp.*, 457 U.S. 624 (1982). *See generally* T. HAZEN, *supra* note 198, at § 11.22; *see also supra* note 167 and accompanying text.

²⁰¹ *Cf.* 17 U.S.C. § 109 (1982).

doctrine's impact. As suggested above, when such a license is one in form only, the courts should adopt a de facto sale doctrine to prevent undercutting the copyright laws' careful balance between the creator's rights and the interest in disseminating knowledge.²⁰² When, however, such licenses are more than a disguised sale, courts should enforce restrictive agreements.

Similarly, courts should void any attempt through a mass-marketed license or other disguised sale to unduly restrict the licensee's use of the program's ideas or other public domain aspects of the program. Such attempts violate the policy of the federal copyright laws. However, when such limitations on the use of ideas or programming techniques and routines arise in the context of a special relationship (such as with joint venturers or the employer and the employee who helps develop the program), courts should enforce restrictions on the use of ideas and other public domain processes. The enforcement should operate under the law of trade secrets, misappropriation, or through the use of well-drafted contractual restrictions.

Absent some limit on software distributors' ability to impinge first sale doctrine rights, a distribution network would exist that would not be tolerated for copyrighted works in other mediums — at least not without enabling legislation. Consider, for example, a decision by the publishing industry to institute a new system of distribution based on licensing rather than outright sales. The licensee would have a right to personal use and no more. The licensee could read the book or magazine, but would have no right to transfer it to anyone else. Under such a plan, libraries would go out of business unless they negotiated a special license, including, for example, royalty arrangements based on the number of times each book were borrowed.²⁰³ Such a distribution method would significantly decrease circulation, and thus would seriously impede the dissemination of information. Would our legal system tolerate such a radical change? I submit that courts would find some method, such as the de facto sale approach or preemption, to hold the hypothetical licensing system contrary to public policy and perhaps preempted by the first sale doctrine.

²⁰² The courts have considered a de facto sale approach in other contexts. For example, courts should give lessees an opportunity to show that a lease with an option to purchase was in fact a credit sale subject to the federal Truth in Lending Act. *Clark v. Rent-it Corp.*, 685 F.2d 245 (8th Cir. 1982). However, the Truth in Lending Act's legislative history suggested Congress had anticipated that such disguised sales might take place. *Id.* at 248, *relying on* *Mourning v. Family Publications Serv., Inc.*, 411 U.S. 356, 365 (1973).

²⁰³ *Cf.* 17 U.S.C. § 108 (1982).

In some areas the traditional sale approach to copyrighted works may not work as the general basis for distribution. Determining the inadequacy of the outright sale would have to be based on a finding that absent some variation, the creator of an artistic, literary, or audio-visual work could not acquire fair compensation for the creativity behind the copyrighted work. One such example is the distribution of copyrighted music and musical arrangements. In 1909 Congress responded to the differences between the published written word and music by passing a compulsory licensing system for copyrighted musical compositions and arrangements.²⁰⁴ The Copyright Act retained this sui generis compulsory licensing system.²⁰⁵ The Copyright Act also established a compulsory licensing system for secondary cable transmissions of radio and television broadcasts, and for use of certain works in connection with noncommercial broadcasting.²⁰⁶ However, no such explicit statutory authority exists for a distribution system based on licensing of computer software.

In response to the Supreme Court's ruling that videotape recording for home use does not violate copyright law,²⁰⁷ legislators have proposed royalty pools for copyright owners. Surcharges on the sale of blank video and audio tapes would fund the pools.²⁰⁸ As with compulsory licensing for music and secondary cable transmissions, congressional approval is viewed as the appropriate route when the need is perceived for a distribution system other than traditional outright sale.

Thus, if computer software's technology warrants a general distribution method other than outright sale — which is a doubtful proposition — federal legislation is the appropriate route for implementation. If software license agreements are desirable in lieu of mass market sales, the appropriate legislative body should have responsibility for creating this new form of consumer ownership. The appropriate legislature is

²⁰⁴ Copyright Act of 1909 § 1(e), 17 U.S.C. § 1(e) (1976) (repealed).

²⁰⁵ 17 U.S.C. § 115 (1982); see also Rosen, *A Common Law for the Ages of Intellectual Property*, 38 U. MIAMI L. REV. 769 (1984); Comment, *Combatting Software Piracy: A Statutory Proposal to Strengthen Software Copyright*, 34 DEPAUL L. REV. 933 (1985).

²⁰⁶ 17 U.S.C. §§ 111(d), 118(b) (1982). The Act also established the Copyright Royalty Tribunal to deal with the Act's compulsory licensing arrangements. *Id.* at §§ 801-10.

²⁰⁷ *Sony Corp. of Am. v. Universal Studios, Inc.*, 464 U.S. 417 (1984). See, e.g., Sinclair, *Fair Use Old and New: The Betamax Case and Its Forebears*, 33 BUFFALO L. REV. 269 (1984); Note, *VCR Home Recording and Title 17: Does Congress Have the Answer to Sony Corp. of America v. Universal City Studios, Inc.?*, 35 SYRACUSE L. REV. 793 (1984).

²⁰⁸ S. 1739, 99th Cong., 1st Sess. (1985); H.R. 2911, 99th Cong., 1st sess. (1985).

Congress, both because the Copyright Act is a federal statute, and because any legislation would have a pervasive impact on interstate commerce. It follows that courts should invalidate attempts to implement such a system without federal legislation as contrary to the balance struck by the copyright laws. In the absence of federal legislation, the courts should scrutinize carefully restrictive software licenses.

Another reason for questioning the validity of overly restrictive software licenses is the prohibition against unreasonable restraints on alienation. The rule, which originated with real property but has also been applied to personal property,²⁰⁹ holds that direct restraints on alienation are generally invalid. Similarly, absent special justification, restraints on assigning contractual rights not involving personal services are generally ineffective.²¹⁰ In light of these age-old limitations, courts should regard skeptically software licenses restricting transferability, even aside from the copyright laws' special policies. The right to pass property to someone else normally accompanies the transfer of certain property rights. Similarly, when an owner markets software in a transaction that, other than its nomenclature as a license, bears all of the benchmarks of a sale, courts may render severe restrictions on use and transferability invalid. Copyright law defines the parameters of one variety of intellectual property. The policy behind limitations on unreasonable restraints on alienation applies to copyrighted works as a type of property. Further, the first sale doctrine is an express statement of certain transfer rights.

Although the de facto sale doctrine would particularly impact products mass marketed under shrink wrap licenses, the doctrine may have other applications. Shrink wrap and box top licenses present special enforcement problems because arguably the licensee has not assented to the terms. Courts could find such licenses unconscionable,²¹¹ or could

²⁰⁹ 3 L. SIMES & A. SMITH, *THE LAW OF FUTURE INTERESTS* § 1161 (2d ed. 1956); 2 F.H. O'NEAL, *CLOSE CORPORATIONS: LAW AND PRACTICE* § 7.06 (2d ed. 1971); Haskell, *Contractual Devices to Keep Undesirables Out of the Neighborhood*, 54 CORNELL L. REV. 521, 527-33 (1969).

²¹⁰ 3 L. SIMES & A. SMITH, *supra* note 209, at § 1165; RESTATEMENT (SECOND) OF THE LAW OF CONTRACTS §§ 317(2), 322 (1981).

²¹¹ See, e.g., *Williams v. Walker-Thomas Furniture Co.*, 350 F.2d 445 (D.D.C. 1965) (consumer credit agreement may be unconscionable); *Jones v. Star Credit Corp.*, 59 Misc. 2d 189, 298 N.Y.S.2d 264 (Sup. Ct. 1969) (holding consumer credit agreement unconscionable); see also, e.g., *A & M Produce Co. v. FMC Corp.*, 135 Cal. App. 3d 473, 186 Cal. Rptr. 114 (1982) (invalidating limitations on consequential damages); cf. *Campbell Soup Co. v. Wentz*, 172 F.2d 80 (3d Cir. 1948) (refusing equitable relief under unconscionable contract). See generally S. DEUTSCH, *UNFAIR CONTRACTS* (1977); Braucher, *The Unconscionable Contract or Term*, 31 U. PITT. L.

hold them to be adhesion contracts.²¹²

However, even if adequate disclosure or legislation neutralizes such attacks, the question remains whether the de facto sale approach is mandated by copyright law or is a matter of policy. I find the latter alternative more suitable. When a transaction in all other respects resembles a sale, and deprives the user of rights under the first sale doctrine or other copyright law provisions, courts should not enforce the restrictions absent some special basis for enforcing them. The licensor should thus bear the burden of justifying the license's restrictions.

Under this suggested approach, courts may enforce many contractual restrictions going beyond the normal copyright protection. For example, consider a bona fide site license. Rather than sell a copy of the program for each user at a specific location, the user (usually a business or educational institution) may desire to pay a flat fee for unlimited use of the program by its employees (or students). In such a case a site license gives the user a discount that is unavailable with direct sales. Such a license would preserve the distributor's proprietary interest in the product's intellectual content. Accordingly, under such an arrangement, limiting the program's use to some number of users or machines, or prohibiting transfer of the site license, is consistent with the balance sought by copyright law.

Restrictive agreements are also appropriate when a software distributor licenses a process as a trade secret. This occurs frequently, for example, when the software is custom tailored to the licensee's needs, or when the licensor provides other services in conjunction with the software license.

Enforcement of trade secret rights depends on the existence of a protectable secret. Trade secret law will not protect something readily apparent to the ordinary observer.²¹³ Accordingly, a trade secret approach

REV. 337 (1970); Ellinghaus, *supra* note 155; Epstein, *Unconscionability: A Critical Reappraisal*, 18 J. L. & ECON. 293 (1975); Leff, *supra* note 155; Murray, *supra* note 155; Spanogle, *supra* note 155.

²¹² See, e.g., *Henningson v. Bloomfield Motors, Inc.*, 32 N.J. 358, 161 A.2d 69 (1960) (invalidating warranty disclaimer of liability for consequential losses); *Klar v. H. & M. Parcel Room, Inc.*, 270 A.D. 538, 61 N.Y.S.2d 285, *aff'd mem.*, 296 N.Y. 1044, 73 N.E.2d 912 (1947) (invalidating limitation of liability on claim check); RESTATEMENT (SECOND) OF THE LAW OF CONTRACTS § 211 (1981); cf. *O'Callaghan v. Waller & Beckwith Realty Co.*, 15 Ill. 2d 436, 155 N.E.2d 545 (1958) (refusing to deny enforcement to limitation of liability in residential lease agreement). See generally Kessler, *supra* note 169; Murray, *The Standardized Agreement Phenomena in the Restatement (Second) of Contracts*, 67 CORNELL L. REV. 735 (1982).

²¹³ See *supra* text accompanying notes 95-132.

applies only to bona fide situations, not subterfuges in the mass market. Thus, trade secret law would not protect screen images or input routines that are not copyrightable. However, if combined with a code encryption and/or copy protection scheme, licensors may keep programming techniques and algorithms secret from the ordinary user. Thus, licensors may protect secret processes or algorithms pursuant to contractual arrangements with parties given special access to them. Similarly, when some wrongdoing such as industrial espionage or theft takes place, the misappropriation tort²¹⁴ may protect certain noncopyrightable aspects of computer software. The misappropriation doctrine is of little help absent independent wrongdoing or a special relationship between the parties, when use or disclosure of the information constitutes a breach of confidentiality or fiduciary duty.²¹⁵

CONCLUSION

The legal theories protecting intellectual property have varying degrees of effectiveness when applied to computer software. Patent law is potentially the strongest protection, but appears unavailable since it is inapplicable to mathematical algorithms standing alone. Copyright law provides significant protection for programming code and screen images as expressions, but does not protect the ideas embodied therein. Trade secret law may protect ideas such as programming techniques, subroutines, or algorithms when the creator does not publicly disclose them. Although the extent of preemption by the Copyright Act remains a serious question, the tort of misappropriation may play a role in protecting the software's intellectual property content.

Additional contractual limitations can best implement the various available protections. However, the extent of potential contractual restrictions is limited, especially between the creator of the program and the end user. When a software creator or distributor attempts to use a license agreement as a guise to provide protections that would otherwise be unavailable under copyright law, courts should consider the federal

²¹⁴ See *supra* text accompanying notes 133-48.

²¹⁵ RESTATEMENT OF THE LAW OF RESTITUTION § 200, comment a (1937): A fiduciary is subject to a duty to the beneficiary not to use on his own account information confidentially given him by the beneficiary or acquired by him during the course of or on account of the fiduciary relation or in violation of his duties as fiduciary, in competition with or to the injury of the beneficiary . . . unless the information is a matter of general knowledge.

See RESTATEMENT OF THE LAW OF AGENCY § 388, comment c (1958).

law's preemptive effect and the general public policy of maintaining the balance struck by Congress in the Copyright Act.

Thus, in deciding whether the user should have first sale doctrine rights, courts should apply a de facto sale doctrine when the transaction bears the essential benchmarks of a sale. Further, courts should presume that a license agreement with an end-user is a sale, leaving the burden on the licensor to prove that instead it is a bona fide license. Under this Article's approach, the judiciary could maintain the appropriate balance between creators' rights to the fruits of their labors, and the public's interest in disclosure, information dissemination, and knowledge advancement.